

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Industrial permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260. The discharge results from the treatment of the following wastewaters:

- Poultry processing wastewater, sanitary wastewater, water plant filtration backwash, boiler blowdown, and stormwater from George's Chicken, LLC (SIC Code: 2015 – Poultry Slaughtering)
- Rendering process wastewater, scrubber wastewater, sanitary wastewater, and stormwater from Mountain View Rendering (SIC Code: 2077 – Animal and Marine Fats and Oils)
- Sanitary wastewater from a mobile home park, two businesses, and five residences.

This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:

George's Chicken, LLC
19992 Senedo Road
Edinburg, VA 22824
Location: 117 Screech Owl Lane, Edinburg, Virginia 22824

2. Permit No. VA0077402; Expiration Date: April 30, 2015

3. Owner: George's Chicken, LLC
Contact Name: Josh Eye
Title: Environmental Supervisor
Telephone No: 540.984.6805
Email: josh.eye@georgesinc.com

4. Application Complete Date: December 18, 2014

Permit Writer: Bev Carver
Reviewed By: Dawn Jeffries

Date: March 12, 2015
Date: March 12, 2015

Public Comment Period: March 27, 2015 to April 26, 2015

5. Receiving Stream Name: Stony Creek (Outfall 001), Stony Creek, UT (Outfall 004)
River Mile: 5.65 (Outfall 001) Use Impairment: Yes
River Mile: 1.10 (Outfall 004)
Watershed Name: VAV – B49R Stony Creek Special Standards: pH
Section: 6; Class: V Tidal Waters: No

6. Operator License Requirements per 9VAC25-31-200.C: II

7. Reliability Class per 9VAC25-790: NA

8. Permit Characterization:

☐ Private ☐ Federal ☐ State ☐ POTW ☒ PVOTW
☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

A Privately Owned Treatment Works (PVOTW) is defined in the VPDES Regulation as a facility that receives wastewater from other facilities not owned by the permittee and is not a Publicly Owned Treatment Works (POTW). George's Chicken LLC WWTP is considered a PVOTW because it receives wastewater from Mountain View Rendering, a mobile home park, residences and businesses which are not owned by George's Chicken LLC.

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

9. Description of Wastewaters and Treatment Facilities:

Appendix A

Total Number of Outfalls = 2

10. Discharge Location Description and Receiving Waters Information:

Appendix B

11. Antidegradation (AD) Review & Comments per 9VAC25-260-30:

Tier Designation: 1

The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. Stony Creek in the vicinity of the discharge is determined to be a Tier 1 water. This determination is based on the fact that this facility discharges to a segment of Stony Creek that is listed as impaired for Benthics. Antidegradation baselines are not calculated for Tier 1 waters.

12. Site Inspection: Performed by Noel Thomas on September 27, 2013 and Bev Carver on March 12, 2015

13. NPDES Permit Rating Worksheet:

Appendix A

The worksheet updated using current information regarding the facility.

☐ Major ☒ Minor Score = 50

14. Effluent Screening and Effluent Limitations:

Appendix C

15. Effluent Toxicity Testing Requirements included per 9VAC25-31-220.D: ☒ Yes ☐ No **Appendix C**

16. Industrial Sludge Management Plan (SMP): The VPDES Permit application serves as the SMP and is approved with the reissuance of the permit.

- Sanitary wastewater and industrial wastewaters are co-mingled and treated in the industrial WWTP; therefore, all sludge generated at the WWTP is classified as industrial residuals.
- Industrial residuals were previously managed in accordance with George’s Chicken VPA Permit No. VPA01555. The VPA permit was terminated on November 8, 2013.
- Industrial residuals are currently dried and hauled to either the Shenandoah County Landfill (SWP469) or the King George County Landfill (SWP586).
- DAF sludge, screenings, and offal are sent to Mountain View Rendering. When there is additional DAF sludge above what Mountain View Rendering can process, the sludge is hauled to Pennsylvania for land application by Enviro-Organic Technologies.
- In the 2014 application, the permittee requested that the SMP include a back-up option of land application of industrial residuals through a contractor in Virginia. Residuals characterization data were not provided in the permit application and a contractor has not been selected; therefore, the back-up option of land application of industrial residuals is not part of the SMP approved with the reissuance of the permit. Once the permittee selects a contractor for land application of industrial residuals and if/when the facility is on the DEQ approved source list, the permittee can submit a revised SMP to DEQ. No VPDES permit modification is required to add land application under a VPA permit as a back-up option in the future.

17. Permit Changes and Bases for Special Conditions:

Appendix D

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18. Material Storage per 9VAC25-31-280.B.2: This permit requires that the facility’s O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.
19. Antibacksliding Review per 9VAC25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.
20. Impaired Use Status Evaluation per 9VAC25-31-220.D: Stony Creek in the vicinity of the discharge is listed as impaired for bacteria, temperature and for not meeting the General Standard (Benthics) for aquatic life use. TMDLs addressing the benthic and temperature impairments have not been developed. The permit contains a re-opener condition that may allow the permit limits to be modified, in compliance with section 303(d)(4) of the Act once a TMDL is approved. The facility was included in the Stony Creek Bacteria TMDL approved by EPA on September 26, 2006. An E. coli WLA of 2.96×10^{12} cfu/year was assigned to the facility based on a flow of 1.7 MGD and an E. coli concentration of 126 cfu/100 mL.

The Chesapeake Bay TMDL specifies allocations for Total Nitrogen (TN), Total Phosphorus (TP), and sediment that resulted from EPA’s evaluation of the jurisdictions’ final Phase I WIPs as described in Section 8 of the TMDL. Table 9-4 of Appendix Q contains the following WLAs for this discharge:

- TN – A WLA of 31,065 lb/year is specified for this facility. This WLA is based on a flow of 1.7 MGD and a TN concentration of 6.0 mg/L. This WLA is the same as the TN WLA for this facility in the Registration List as part of the Nutrient General Permit Regulation at 9VAC25-820-70.
 - TP – A WLA of 1,553 lb/year is specified for this facility. This WLA is based on a flow of 1.7 MGD and a TP concentration of 0.3 mg/L. This WLA is the same as the TN WLA for this facility in the Registration List as part of the Nutrient General Permit Regulation at 9VAC25-820-70.
 - TSS – A WLA of 104,390 lb/year is specified for this facility. This WLA is based on a flow of 1.7 MGD and a TSS concentration of 20 mg/L.
21. Regulation of Users per 9VAC25-31-280.B.9: Mountain View Rendering is a separate entity from George’s Chicken LLC. Mountain View Rendering discharges wastewater to George’s Chicken LLC WWTP. In addition, there are two businesses connected to the George’s Chicken LLC WWTP. Since George’s Chicken LLC WWTP is a PVOTW, pretreatment requirements do not apply; however, it is the responsibility of George’s Chicken LLC to control these industrial users contributing to the treatment works
 22. Stormwater Management per 9VAC25-31-120: Application Required? ☒Yes ☐No
 23. Compliance Schedule per 9VAC25-31-250: None required by this permit.
 24. Variances/Alternative Limits or Conditions per 9VAC25-31-280.B, 100.H, and 100.M: The proposed permit action includes the continuation of a variance to the temperature standard for stockable trout waters, as specified by the WQS. This variance was originally approved in 1994. The instream temperature monitoring program will continue above and below Outfall 001.
 25. Financial Assurance Applicability per 9VAC25-650-10: N/A – There are private sewer connections to the George’s Chicken WWTP including a trailer park and six residences. George’s Chicken LLC WWTP is classified as a PVOTW and the application stated that 0.0357 MGD of sanitary wastewater flow is treated. The design flow of the WWTP is 1.7 MGD. Since the design flow of the WWTP is greater than 40,000 GPD, the financial assurance requirements are not applicable.

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26. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☒ No
27. Nutrient Trading Regulation per 9VAC25-820: See Appendix C
General Permit Required: ☒ Yes ☐ No
Permit No.: VAN010011
28. Nutrient monitoring included per Guidance Memo No. 14-2011: ☒ Yes ☐ No
29. Threatened and Endangered (T&E) Species Screening per 9VAC25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows, T&E screening is not automatically required. However, in accordance with the VPDES Memorandum of Understanding, T&E screening was coordinated on November 24, 2014 through DCR and November 21, 2014 through DGIF based upon request. Comments were received from DCR on December 18, 2014 and from DGIF on February 9, 2015 and are included in the permit processing file. Comments were considered in the drafting of the permit and were also forwarded to the permittee.
30. Public Notice Information per 9VAC25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Bev Carver at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7805, beverley.carver@deq.virginia.gov.

The proposed permit action includes the continuation of a variance to the temperature standard for stockable trout waters, as specified by the WQS. This variance was originally approved in 1994. The instream temperature monitoring program will continue above and below Outfall 001.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

31. Historical Record:

- The poultry processing plant was constructed by Blue Ridge Poultry and Egg around 1958.
- In the early 1960s a treatment unit was placed in operation.
- In 1968 additional treatment was added.
- An Industrial Waste No Discharge Certificate No. IW-77 was issued April 5, 1973.
- A VPDES permit was issued on November 30, 1974 with an estimated design flow of 0.39 MGD. The permit number was originally VA0001902.
- The permit was reissued on December 6, 1984. The permit number used was still VA0001902.
- The permit was reissued on September 1, 1988, and the permit number had changed to VA0077402.
- The permit was modified on April 20, 1989.
- The permit was reissued on September 1, 1993.
- The permit was reissued on July 19, 1999.
- The permit was modified on January 27, 2000 to combine Outfalls 002 and 003.

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- The permit was modified on September 21, 2001 to change the ownership from Rocco Farm Foods to George’s Chicken, LLC.
- The permit was modified on May 23, 2002 to include the existing flow tier of 1.3 MGD and a new expansion flow tier of 1.7 MGD. A Concept Engineering Report (CER) was approved concurrent with the permit modification for the installation of a Biological Nutrient Removal (BNR) treatment process.
- In August 2002, the permittee began discharging from the 1.7 MGD facility.
- The permit expired on July 19, 2004 and was administratively continued due to federal effluent guidelines for Meat and Poultry Products and new nutrient guidance.
- The permit was reissued on May 1, 2005.
- The permit was reissued on May 1, 2010.
- In a letter dated January 10, 2011, DEQ was notified that the construction of the upgrade to the George’s Chicken LLC WWTP for high efficiency TN and TP removal had been completed in accordance with the approved plans and specifications dated December 12, 2009.
- On June 27, 2014 a Concept Engineering Report for WWTP improvements was approved. The scope of the project included:
 - A new Anaerobic Lagoon (AL) Influent Flow Splitter tank to provide the operator capability to more accurately measure, control, and proportion the volume of pretreated wastewater that is discharged into the inlet side of the AL; into the new Emergency Storage Lagoon; or, directly into the activated sludge final treatment system, by-passing the AL.
 - A new Clarifier Effluent Pump Station and force main to provide capability to recycle clarifier effluent up to the new Emergency Storage Lagoon in the event of a treatment system upset.
- A Consent Order for George’s Chicken LLC was closed on October 10, 2014.
- On November 14, 2014 a Concept Engineering Report for WWTP improvements was approved. The WWTP improvements are projected to be completed by July 2016. The scope of the project included:
 - Providing for effluent to be discharged from an existing final clarifier into an existing emergency storage lagoon (ESL) in the event the biological nitrogen removal (BNR) activated sludge system is in upset condition causing the clarifier effluent wastewater pollutant concentrations for ammonia nitrogen or TP to be above discharge permit limits. A new clarifier effluent recycle pump station is to be installed including a new pump station wet well and new submersible pump to provide capability to transfer clarifier effluent into the ESL. A new recycle force main is also to be installed between the new recycle pump station and the ESL for recycle water transfer.
 - Providing a more accurate means to feed raw wastewater into the inlet and outlet zones of an existing anaerobic lagoon. A new AL influent FDT is to be installed with four flow splitter sections, each with a flat crested flow meter to allow the flow over each weir to be selectively metered and controlled. The new FDT will allow the wastewater treatment system raw wastewater inflow to be more accurately divided or split into four potential discharge locations including the AL inlet zone, the AL outlet zone, the ESL and the BNR system influent. Under normal operation conditions, controlled portions of the raw wastewater influent flow will be discharged into the AL inlet zone and the AL outlet zone in order to more accurately control the BOD/TKN ratio of the pretreated wastewater pumped out of the AL into the BNR system.

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APPENDIX A

DESCRIPTION OF WASTEWATERS AND TREATMENT FACILITIES

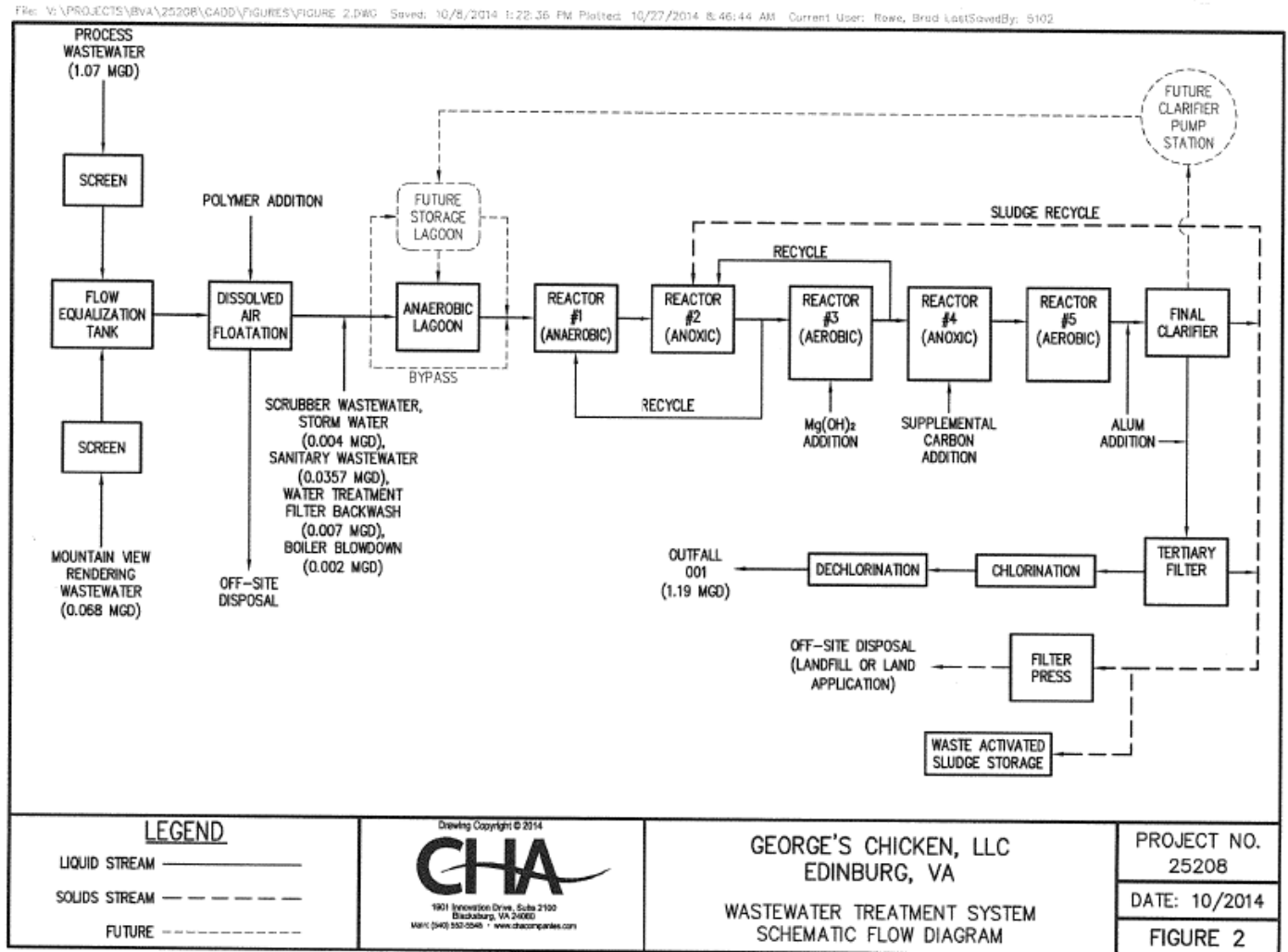
The design flow of the George’s Chicken LLC WWTP is 1.7 MGD. The following wastewaters are conveyed to the WWTP for treatment and discharge via Outfall 001.

- Poultry processing wastewater, sanitary wastewater, water plant filtration backwash, boiler blowdown, and stormwater from George’s Chicken, LLC. George’s Chicken LLC operates a chicken slaughtering and processing plant with a combined 1st and 2nd shift. It also sells and distributes fresh ice packed whole chicken and chicken parts.
- Rendering wastewater, scrubber wastewater, sanitary wastewater, and stormwater from Mountain View Rendering. According to the 2014 VPDES permit application for George’s Chicken, the average flows received from Mountain View Rendering are 0.068 MGD. Mountain View Rendering Company has an air permit with DEQ under Registration No. 81087. The air permit includes a requirement that the total amount of material received for rendering shall not exceed 214,000 tons per year, calculated as the sum of each consecutive twelve (12) month period. Mountain View Rendering routinely processes rendered material from George’s Chicken, LLC and the Cargill Turkey Plant in Dayton, Virginia. In addition, in August 2014, Mountain View Rendering generated an additional 0.023 MGD of wastewater on an emergency basis from rendering of material that would have normally gone to other facilities.
- Sanitary wastewater from a mobile home park, two businesses, and five residences.

Stormwater associated with industrial activity that is not commingled with process wastewater is discharged to an unnamed tributary of Stony Creek via Outfall 004.

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WWTP Flow Schematic



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VPDES Permit Rating Work Sheet

Facilities identified under SIC Code 2015 have the following characteristics as defined in Appendix A to the NPDES Permit Rating Work Sheet found in the VPDES Permit Manual.

1987 SIC Code	1987 SIC Code Title	40 CFR 432 Sub- Part	Sub-part Title	Human Health Toxicity Number	Total Toxicity Number	Industrial Sub- category Number
2015	Poultry Slaughtering and Processing	K	Poultry First Processing	1	1	NA
2077	Animal and Marine Fats and Oils	J	Rendering	1	1	NA

Factor 1 – Toxic Pollutant Potential

The toxic pollutant potential determination was performed using the Total Toxicity Number from the SIC Code 2015 since this is the primary activity at the facility. This is unchanged from the previous rating.

Factor 2 – Flow/Stream Flow Volume

Section B is selected because it is possible to predict an instream concentration mix at critical stream flows. Type II is selected. Type II wastewaters with flows with an IWC $\geq 50\%$ correspond to code 53. This is unchanged from the previous rating.

Factor 3 – Conventional Pollutants

The permit contains limits for: A. Oxygen Demanding Pollutants; B. Total Suspended Solids; and C. Nitrogen Pollutants. This is unchanged from the previous rating.

Factor 4 – Public Health Impact

Using a worst case evaluation, it is assumed that there is a public drinking water supply within 50 miles downstream of the facility. This is unchanged from the previous rating.

Factor 5.A – The facility is subject to water quality based effluent limits. This is unchanged from the previous rating.

Factor 5.B – The receiving water is impaired for temperature and bacteria. This is unchanged from the previous rating.

Factor 5.C – The permit contains Toxics Management Program requirements. Past monitoring data has not indicated that the discharge has exceeded WQS due to whole effluent toxicity. This is unchanged from the previous rating.

Factor 6. – Proximity to Near Coastal Waters: Headquarters Priority Permit Indicator (HPRI) Code #4 – This discharge occurs in a non-coastal county. This is unchanged from the previous rating.

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NPDES PERMIT RATING WORK SHEET

NPDES NO. VA0077402

Facility Name: George's Chicken, LLC

City: Edinburg, VA

Receiving Water: Stony Creek

Reach Number: _____

- ☒ Regular Addition
☐ Discretionary Addition
☐ Score change, but no status change
☐ Deletion

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (stop here) ☒ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

- ☐ YES; score is 700 (stop here)
☒ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: _____ Primary SIC Code: 2015 Other SIC Codes: 2077
 Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
[] No process waste streams			[] 3.	3	15	[] 7.	7	35
[X] 1.	1	5	[] 4.	4	20	[] 8.	8	40
[] 2.	2	10	[] 5.	5	25	[] 9.	9	45
			[] 6.	6	30	[] 10.	10	50

Code Number Checked : 1

Total Points Factor 1: 5

FACTOR 2: Flow/Stream Flow Volume (Complete either Section A or Section B; check only one)

Section A ☐ Wastewater Flow Only Considered

Wastewater Type (See Instructions)	Code	Points
Type I: Flow < 5 MGD	<input type="checkbox"/> 11	0
Flow 5 to 10 MGD	<input type="checkbox"/> 12	10
Flow > 10 to 50 MGD	<input type="checkbox"/> 13	20
Flow > 50 MGD	<input type="checkbox"/> 14	30
Type II: Flow < 1 MGD	<input type="checkbox"/> 21	10
Flow 1 to 5 MGD	<input type="checkbox"/> 22	20
Flow > 5 to 10 MGD	<input type="checkbox"/> 23	30
Flow > 10 MGD	<input type="checkbox"/> 24	50
Type III: Flow < 1 MGD	<input type="checkbox"/> 31	0
Flow 1 to 5 MGD	<input type="checkbox"/> 32	10
Flow > 5 to 10 MGD	<input type="checkbox"/> 33	20
Flow > 10 MGD	<input type="checkbox"/> 34	30

Section B ☒ Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow	Code	Points
Type I/III:	< 10 %	<input type="checkbox"/> 41	0
	10 % to < 50 %	<input type="checkbox"/> 42	10
	> 50 %	<input type="checkbox"/> 43	20
Type II:	< 10 %	<input type="checkbox"/> 51	0
	10 % to < 50 %	<input checked="" type="checkbox"/> 52	20
	> 50 %	<input type="checkbox"/> 53	30

Code Checked from Section A or B: 52

Total Points Factor 2: 20

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FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutant: (check one) ☐ BOD ☐ COD ☐ Other: _____

Permit Limits: (check one)			Code	Points
<input type="checkbox"/>	< 100 lbs/day		1	0
<input checked="" type="checkbox"/>	100 to 1000 lbs/day		2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day		3	15
<input type="checkbox"/>	> 3000 lbs/day		4	20

Code Checked: 2

Points Scored: 5

B. Total Suspended Solids (TSS)

Permit Limits: (check one)			Code	Points
<input type="checkbox"/>	< 100 lbs/day		1	0
<input checked="" type="checkbox"/>	100 to 1000 lbs/day		2	5
<input type="checkbox"/>	> 1000 to 5000 lbs/day		3	15
<input type="checkbox"/>	> 5000 lbs/day		4	20

Code Checked: 2

Points Scored: 5

C. Nitrogen Pollutant: (check one) ☒ Ammonia ☒ Other: Total Nitrogen

Permit Limits: (check one)		Nitrogen Equivalent	Code	Points
<input checked="" type="checkbox"/>	< 300 lbs/day		1	0
<input type="checkbox"/>	300 to 1000 lbs/day		2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day		3	15
<input type="checkbox"/>	> 3000 lbs/day		4	20

Code Checked: 1

Points Scored: 0

Total Points Factor 3: 10

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☒ YES (If yes, check toxicity potential number below)

☐ NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column ☐ check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input type="checkbox"/> 7.	7	15
<input checked="" type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8	20
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9	25
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10	30

Code Number Checked: 1

Total Points Factor 4: 0

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FACTOR 5: Water Quality Factors

- A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge:*

<input checked="" type="checkbox"/>	Yes	Code 1	Points 10
<input type="checkbox"/>	No	2	0

- B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

<input type="checkbox"/>	Yes	Code 1	Points 0
<input checked="" type="checkbox"/>	No	2	5

- C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

<input type="checkbox"/>	Yes	Code 1	Points 10
<input checked="" type="checkbox"/>	No	2	0

Code Number Checked: A 1 B 2 C 2

Points Factor 5: A 10 + B 5 + C 0 = 15 TOTAL

FACTOR 6: Proximity to Near Coastal Waters

- A. *Base Score: Enter flow code here (from Factor 2):* 52

Enter the multiplication factor that corresponds to the flow code: 0.30

Check appropriate facility HPRI Code (from PCS):

	HPRI#	Code	HPRI Score	Flow Code	Multiplication Factor
<input type="checkbox"/>	1	1	20	11, 31, or 41	0.00
<input type="checkbox"/>	2	2	0	12, 32, or 42	0.05
<input type="checkbox"/>	3	3	30	13, 33, or 43	0.10
<input checked="" type="checkbox"/>	4	4	0	14 or 34	0.15
<input type="checkbox"/>	5	5	20	21 or 51	0.10
				22 or 52	0.30
				23 or 53	0.60
				24	1.00

HPRI code checked: 4

Base Score: (HPRI Score) 0 X (Multiplication Factor) 0.3 = 0 (TOTAL POINTS)

- B. *Additional Points* ☐ *NEP Program*
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

N/A

		Code	Points
<input type="checkbox"/>	Yes	1	10
<input type="checkbox"/>	No	2	0

- C. *Additional Points* ☐ *Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see Instructions)

N/A

		Code	Points
<input type="checkbox"/>	Yes	1	10
<input type="checkbox"/>	No	2	0

Code Number Checked: A 4 B N/A C N/A -

Points Factor 6: A 0 + B NA + C NA = 0 TOTAL

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SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	<u>5</u>
2	Flows/Streamflow Volume	<u>20</u>
3	Conventional Pollutants	<u>10</u>
4	Public Health Impacts	<u>0</u>
5	Water Quality Factors	<u>15</u>
6	Proximity to Near Coastal Waters	<u>0</u>
TOTAL (Factors 1 through 6)		<u>50</u>

S1. Is the total score equal to or greater than 80? ☐ Yes (Facility is a major) ☒ No

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☒ No

☐ Yes (Add 500 points to the above score and provide reason below:

Reason:

NEW SCORE: 50

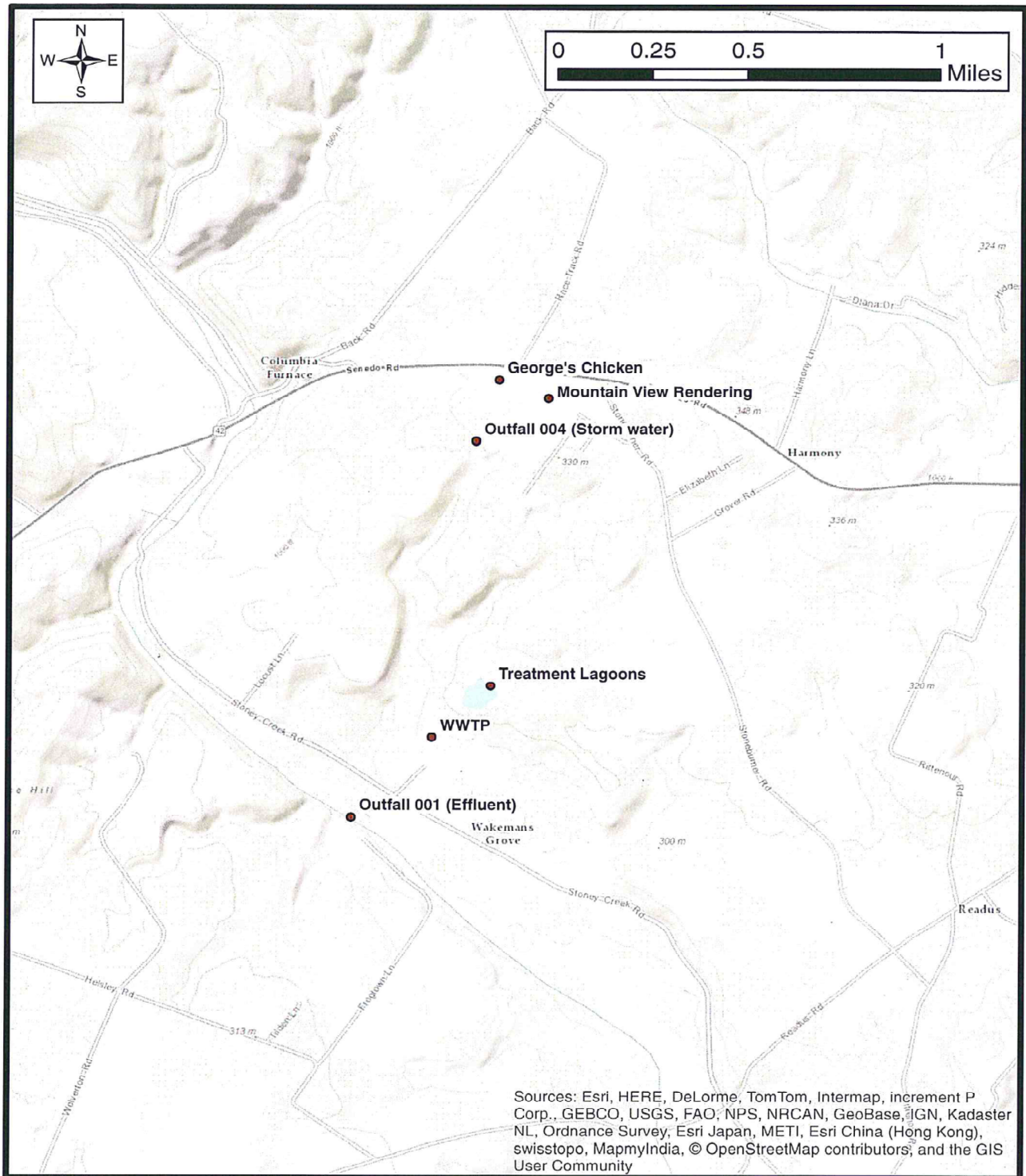
OLD SCORE: 50

Bev Carver
Permit Writer’s Name
540-574-7805
Phone Number
11.12.14
Date

APPENDIX B

DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

The location of the WWTP and outfalls are shown on the topographic map below.



Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

PLANNING INFORMATION

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the Water Quality Assessments Review table below.

WATER QUALITY ASSESSMENTS REVIEW						
POTOMAC-SHENANDOAH RIVER BASIN						
11/10/2014						
IMPAIRED SEGMENTS						
SEGMENT ID	STREAM	SEGMENT START	SEGMENT END	SEGMENT LENGTH	PARAMETER	
B45R-04-BAC	North Fork Shenandoah River	90.61	56.35	34.26	Fecal Coliform/E-coli	
B48R-02-BEN	Crooked Run	3.89	0.00	3.89	Benthic	
B49R-01-BAC	Stony Creek	17.04	0.00	17.04	Fecal Coliform	
B49R-01-BEN	Stony Creek	5.76	0.00	5.76	Benthic	
B49R-04-BEN	Laurel Run	3.72	0.00	3.72	Benthic	
B49R-05-TEMP	Little Stony Creek	4.85	0.00	4.85	Temperature	
B49R-07-TEMP	Stony Creek	22.92	4.51	18.41	Temperature	
B50R-02-BAC	Narrow Passage Creek	10.75	0.00	10.75	Fecal Coliform, E-coli	
B50R-05-BAC	Spring Hollow	6.36	0.00	6.36	E-coli	
PERMITS						
PERMIT	FACILITY	STREAM	RIVER MILE	LAT	LONG	WBID
VA0077402	George's Chicken LLC (001)	Stony Creek	5.65	385134	0783715	VAV-B49R
VA0077402	George's Chicken LLC (004)	Stony Creek UT	1.10	385230	0783645	VAV-B49R
VA0020508	Edinburg STP	Stony Creek	0.62	384913	0783329	VAV-B49R
VA0092550	Dorothy's Inn	NF Shenandoah River	54.94	385037	0783207	VAV-B50R
VA0088846	Valley Wood Products STP	Narrow Passage Creek	0.57	385045	0783215	VAV-B50R
VA0090328	North Fork Regional WWTP	N.F. Shenandoah River	57.65	384935	0783201	VAV-B50R
VA0091791	Edinburg WTP	Stony Creek UT	0.25	384929	0783344	VAV-B49R
MONITORING STATIONS						
STREAM	NAME	RIVER MILE	RECORD	LAT	LONG	
Little Stony Creek	1BLSC000.50	0.5	2/23/09	385402	0783941	
N.F. Shenandoah River	1BNFS062.18	62.18	7/18/68	384831	0783358	
N.F. Shenandoah River	1BNFS066.50	66.5	6/11/98	384656	0783602	
N.F. Shenandoah River	1BNFS054.75	54.75	8/10/88	385041	0783154	
N.F. Shenandoah River	1BNFS059.59	59.59	7/18/68	384924	0783258	
Narrow Passage Creek	1BNPC000.02	0.02	7/1/91	385046	0783146	
Stony Creek	1BSTY001.22	1.22	4/26/73	384915	0783402	
Stony Creek	1BSTY003.84	3.84	5/11/01	385024	0783552	
Stony Creek	1BSTY005.85	5.85	7/1/91	385136	0783716	
Stony Creek	1BSTY013.85	13.85	5/11/01	385213	0784102	
Laurel Run	1BLAR001.77	1.77	2/23/11	385319	0784231	
May Spring Run	1BMAY000.04	0.04	4/21/06	385308	0783819	
May Spring Run	1BMAY001.08	1.08	4/21/06	385355	0783802	
N.F. Shenandoah River	1BNFS054.80	54.75	4/25/90	385040	0783157	
Stony Creek	1BSTY004.24	4.24	10/20/98	385032	0783607	
Crooked Run	1BCKD000.38	0.38	5/6/05	384544	0784104	
Stony Creek	1BSTY006.81	6.81	4/26/73	385216	0783748	
PUBLIC WATER SUPPLY INTAKES						
OWNER	STREAM	RIVER MILE				
None						
WATER QUALITY MANAGEMENT PLANNING REGULATION						
Is this discharge addressed in the WQMP regulation? Yes						
If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?						
PARAMETER	ALLOCATION					
Nutrients under the Watershed General Permit						
WATERSHED NAME						
VAV-B49R Stony Creek						

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

FLOW FREQUENCY DETERMINATION

The subject facility discharges to Stony Creek near Columbia Furnace, VA. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit reissuance.

The USGS operated a continuous record gage on Stony Creek at Columbia Furnace, VA (#01633500) from 1947 to 1956 and Rocco Foods made several flow measurements there from 1989 to 1992. However, since there was not a full ten years of continuous data for this site, flow frequencies could not be developed directly for the gage. Instead, selected low flow data and the measurements were correlated with the same day daily mean flow values for the long-term gage on Cedar Creek near Winchester, VA (#01634500). The data was plotted on a log/log graph, and a best-fit line was drawn. The formula of the line was used to calculate flow frequencies for Stony Creek at Columbia Furnace from the flow frequencies for the entire period of record for the Cedar Creek gage.

The high flow months for the long-term gage on Cedar Creek are January – May. The temperature variance for George’s Chicken LLC specifies the following seasons:

- (July – September) – Trout are not stocked in Stony Creek)(Effluent Temperature Limit = 29 °C)
- (October – June) – Trout are stocked in Stony Creek)(Effluent Temperature Limit = 26 °C)

Flow frequency determinations are normally calculated based on the seasons specified for each stream gage. In the case of George’s Chicken LLC, the flow frequency values were calculated for the July – September and October – June temperature seasons specified for the temperature variance. During the July – September timeframe when trout are not stocked, a higher effluent temperature of 29° C is allowed as compared to October – June timeframe when trout are stocked. The critical flows during the July – September timeframe are needed for modeling purposes to coincide with the period when higher effluent temperatures are authorized by the permit.

The remaining flow frequencies for 30Q5 and HM have not been tiered. The flow frequencies at the discharge point were determined by using the calculated flow frequencies for Stony Creek and adjusting them by proportional drainage areas. The flow frequencies are presented below.

Cedar Creek near Winchester, VA (#01634500):

Drainage Area = 102 mi²

1Q10 (Jul-Sep) =	4.17 cfs	1Q10 (Oct-Jun) =	5.92 cfs
7Q10 (Jul-Sep) =	4.70 cfs	7Q10 (Oct-Jun) =	6.83 cfs
30Q10 (Jul-Sep) =	6.14 cfs	30Q10 (Oct-Jun) =	9.53 cfs
30Q5 =	7.34 cfs	HM =	24.8 cfs

Stony Creek at Columbia Furnace, VA (#01633500):

Drainage Area = 77.5 mi²

1Q10 (Jul-Sep) =	3.52 cfs	1Q10 (Oct-Jun) =	4.75 cfs
7Q10 (Jul-Sep) =	3.92 cfs	7Q10 (Oct-Jun) =	5.40 cfs
30Q10 (Jul-Sep) =	4.98 cfs	30Q10 (Oct-Jun) =	7.2 cfs
30Q5 =	5.81 cfs	HM =	17.0 cfs

Stony Creek at discharge point:

Drainage Area = 81.9 mi²

1Q10 (Jul-Sep) =	3.63 cfs	(2.35 MGD)	1Q10 (Oct-Jun) =	4.90 cfs	(3.17 MGD)
7Q10 (Jul-Sep) =	4.04 cfs	(2.61 MGD)	7Q10 (Oct-Jun) =	5.57 cfs	(3.60 MGD)
30Q10 (Jul-Sep) =	5.14 cfs	(3.32 MGD)	30Q10 (Oct-Jun) =	7.43 cfs	(4.80 MGD)
30Q5 =	5.99 cfs	(3.87 MGD)	HM =	17.5 cfs	(11.3 MGD)

The analysis assumes that there are no significant discharges, withdrawals, or springs that may influence the flow in Stony Creek upstream of the discharge point.

*Preparer: Keith Showman
Date: January 13, 2015*

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

EFFLUENT/STREAM MIXING EVALUATION

Mixing zone predictions were made with the Virginia DEQ Mixing Zone Analysis Version 2.1 program. The predictions are based on the discharge and receiving stream characteristics, and are presented below.

Effluent Flow = 1.7 MGD (July – September)(Annual)

Stream 7Q10 = 2.61 MGD

Stream 30Q10 = 3.32 MGD

Stream 1Q10 = 2.35 MGD

Stream slope = 0.00465 ft/ft

Stream width = 40 ft

Bottom scale = 5

Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .4693 ft

Length = 1828.34 ft

Velocity = .3554 ft/sec

Residence Time = .0595 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .5147 ft

Length = 1690.37 ft

Velocity = .3774 ft/sec

Residence Time = .0518 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .452 ft

Length = 1887.72 ft

Velocity = .3468 ft/sec

Residence Time = 1.5121 hours

Recommendation: A complete mix assumption is appropriate for this situation providing no more than 66.13% of the 1Q10 is used.

Virginia DEQ Mixing Zone Analysis Version 2.1

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

**MEMORANDUM
DEPARTMENT OF ENVIRONMENTAL QUALITY
VALLEY REGIONAL OFFICE**

4411 Early Road – P.O. Box 3000

Harrisonburg, VA 22801

SUBJECT: Site Inspection for Reissuance of VPDES Permit No. VA0077402, George’s Chicken LLC
Shenandoah County

TO: Permit Processing File

FROM: Bev Carver

DATE: March 12, 2015

On March 12, 2015, the writer performed a site inspection of Stony Creek in conjunction with the reissuance of the VPDES permit. Photos that were taken during the site inspection are shown below:

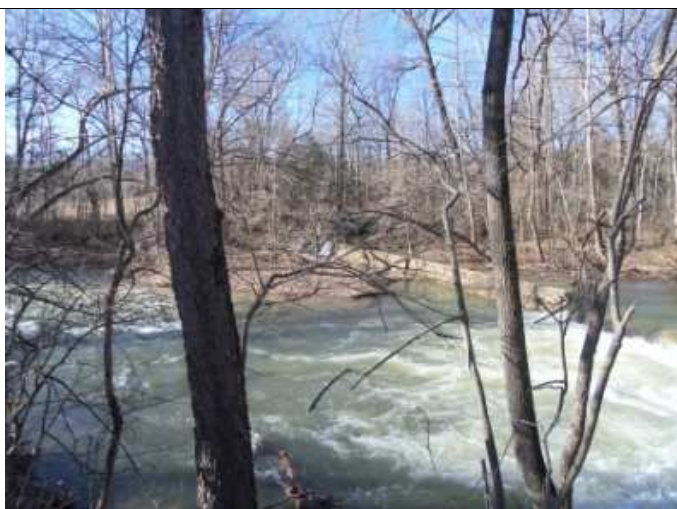


Outfall 001



Stony Creek downstream of Outfall 001

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC



Confluence of Stony Creek and Swover Creek



Stony Creek at Rt. 701 bridge



Stony Creek UT at Rt. 710 bridge



Painter Run at Rt. 687 bridge



Stony Creek at Rt.686 bridge



Confluence of Stony Creek, UT
and Stony Creek just upstream of Edinburg STP

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

APPENDIX C

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS:

A comparison of technology and water quality-based limits was performed and the most stringent limits were selected, as summarized in the tables below.

Outfall 001

Final Limits

Design Flow: 1.7 MGD

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
CBOD ₅	4,5	7 mg/L	40 kg/d	14 mg/L	90 kg/d	1/Week	24 HC
TSS	2,12	20 mg/L	130 kg/d	30 mg/L	190 kg/d	1/Month	24 HC
Ammonia-N (mg/L)	2,3,4	4.0		7.3		1/Week	24 HC
Effluent Chlorine (TRC)(mg/L)*	4	0.016		0.036		4/Day	Grab
Oil and Grease (as HEM)***	2	8.0 mg/L	51 kg/d	14 mg/L	90 kg/d	1/Month	Grab
E. coli (N/100 mL)* (geometric mean)	4,7	126		NA		4/Month in any month of each calendar quarter 10 a.m. to 4 p.m.	Grab
E. coli (N/100 mL)** (geometric mean)	4,7	126		NA		5/Week 10 a.m. to 4 p.m.	Grab
Total Nitrogen (Apr-Oct)*****	3,8	10 mg/L	64 kg/d	147 mg/L	946 kg/d	2/Month	Calculated
Total Nitrogen (Nov-Mar)*****	3,8	20 mg/L	130 kg/d	147 mg/L	946 kg/d	2/Month	Calculated
Total Phosphorus (TP)	8	2.0 mg/L	13 kg/d	NA		2/Month	24 HC
-----	-----	Yearly Average		Maximum		-----	-----
TP – Year to Date (mg/L)	10	NL		NA		1/Month	Calculated
TP – Calendar Year (mg/L)	10,11	0.30		NA		1/Year	Calculated
TN – Year to Date (mg/L)	10	NL		NA		1/Month	Calculated
TN – Calendar Year (mg/L)	10,11	6.0		NA		1/Year	Calculated
-----	-----	Minimum		Maximum		-----	-----
pH (SU)	2,4	6.5		9.0		1/Day	Grab
Fecal Coliform (N/100 mL)	2	NA		400		1/Year	Grab
Temperature (Jul-Sep)(°C)	9	NA		29		Continuous	Recorded
Temperature (Oct-Jun) (°C)	9	NA		26		Continuous	Recorded
Dissolved Oxygen (mg/L)	4,5	6.5		NA		1/Day	Grab
Contact Chlorine (TRC)(mg/L)*	6	0.5		NA		4/Day	Grab

NL = No Limitation, monitoring required

TIRE = Totalizing, Indicating, and Recording equipment

NA = Not Applicable

24 HC = 24-Hour composite sample

* = Applicable only when chlorination is used for disinfection

** = Applicable if an alternative to chlorination is used for disinfection

*** = Oil and Grease shall be measured as n-hexane extractable material

***** = Total Nitrogen, which is the sum of TKN and Nitrite-N + Nitrate-N, shall be derived from the results of those tests

4/Day = 4 samples taken daily at 4 hour intervals

5/Week = 5 samples taken, one per day, during the calendar week

2/Month = 2 samples taken during the calendar month, no less than 7 days apart

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

4/Month in any month of each calendar quarter = 4 samples taken, with at least 1 sample taken each calendar week, in any calendar month of each quarter and reported with the DMRs due January 10th, April 10th, July 10th and October 10th of each year
 1/Year = Annual sampling with the results submitted with the DMR due January 10th of each year

Bases for Effluent Limitations

1. VPDES Permit Regulation (9VAC25-31)
2. Federal Effluent Requirements (Meat and Poultry Products – 40CFR432 – Subpart K - BPT)
3. Federal Effluent Requirements (Meat and Poultry Products – 40CFR432 – Subpart K - BAT)
4. Water Quality Standards (9VAC25-260)
5. Regional Stream Model simulation
6. Best Professional Judgment (BPJ)
7. Bacteria TMDL for Stony Creek approved September 26, 2006
8. Antibacksliding
9. Temperature variance to the WQS approved in 1994
10. Guidance Memo No. 07-2008, Amendment No. 2, Permitting Considerations for Facilities in the Chesapeake Bay Watershed
11. Technology Regulation (9VAC25-40-70)
12. Chesapeake Bay TMDL

Outfall 004 (solely stormwater associated with industrial activity)

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average	Maximum	Frequency	Sample Type
TSS (mg/L)	1,2	NA	NL	1/6 Months	Grab
BOD ₅ (mg/L)	2	NA	NL	1/6 Months	Grab
TKN (mg/L)	1,2	NA	NL	1/6 Months	Grab
Nitrite-N + Nitrate-N (mg/L)	1,2	NA	NL	1/6 Months	Grab
Total Phosphorus (mg/L)	1	NA	NL	1/6 Months**	Grab
Total Nitrogen (mg/L)*	1,2	NA	NL	1/6 Months	Calculated

NL = No Limitation, monitoring required

NA = Not Applicable

* Total Nitrogen, which is the sum of TKN and Nitrite-N + Nitrate-N, shall be determined from the results of those tests

** Total Phosphorus sampling (January 1 – June 30 and July 1 – December 31) is required for the first two years of the permit, with the results submitted with the DMR due January 10th and July 10th of each year resulting in a total of 4 samples.

1/6 Months = Semiannual sampling (January 1 – June 30 and July 1 – December 31) with the results submitted with the DMR due January 10th and July 10th of each year

BASIS DESCRIPTIONS

1. Guidance Memo No. 14-2011, Nutrient Monitoring for Nonsignificant Discharges to the Chesapeake Bay Watershed
2. Guidance Memo No. 14-2003, VPDES Permit Manual

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

LIMITING FACTORS – OVERVIEW:

The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (WQMP) (9VAC25-720)	
A. TMDL limits	E. coli
B. Non-TMDL WLAs	None
C. CBP (TN & TP) WLAs	TN, TP by coverage under VAN010011
Federal Effluent Guidelines – Meat and Poultry Products, 40 CFR Part 432 Subpart K	Ammonia-N, BOD ₅ , Fecal Coliform, Oil and Grease, TSS, TN, pH
Federal Effluent Guidelines – Meat and Poultry Products, 40 CFR Part 432 Subpart J	Ammonia-N, BOD ₅ , Fecal Coliform, Oil and Grease, TSS, TN, pH
Federal Effluent Guidelines – Secondary Treatment for Sanitary Wastewater, 40 CFR Part 133	BOD ₅ , TSS, pH
BPJ/Agency Guidance limits	None
Water Quality-based Limits - numeric	CBOD ₅ , DO, Ammonia-N, E. coli, pH, TKN, TRC
WQS Variance	Temperature
Water Quality-based Limits - narrative	None
Technology Regulation (9VAC25-40-70)	TP and TN concentration limits
Whole Effluent Toxicity (WET)	Monitoring only
Stormwater Limits	Nutrient monitoring was required at Outfall 004
Chesapeake Bay TMDL, Appendix Q	TN, TP, TSS

EVALUATION OF THE EFFLUENT – STORMWATER

The SIC codes applicable to this facility are:

- SIC Code 2015 – Poultry Slaughtering and Processing. No benchmark stormwater monitoring is required.
- SIC Code 2077 – Animal and Marine Fats and Oils (applies to the Mountain View Rendering facility co-located onsite which discharges industrial wastewater to the Georges Chicken, LLC WWTP. Benchmark stormwater monitoring is required for BOD₅, TN, and TSS.

No stormwater monitoring was required in the previous permit. Both benchmark monitoring and Chesapeake Bay TMDL stormwater monitoring have been required for Outfall 004 at this reissuance.

Outfall 001:

Stormwater exposed to industrial activity is collected and treated through the industrial WWTP serving Outfall 001; therefore, separate stormwater monitoring for Outfall 001 is not required.

Outfall 004:

Outfall 004 has been previously categorized as a solely stormwater outfall exposed to industrial activity. The permit contains 1/6 Month benchmark monitoring for BOD₅, TN, and TSS. The benchmark concentrations are specified under the Sector-Specific Stormwater Pollution Prevention Plan requirements in the permit.

Outfall 004 is also subject to DEQ Guidance Memo 14-2011, “Nutrient Monitoring for Non-significant Discharges to the Chesapeake Bay Watershed”. Monitoring is required 1/6 Months for TSS, TKN, Nitrite-N + Nitrate-N, TN and TP for the first two years of the permit or four monitoring periods.

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

EVALUATION OF THE EFFLUENT – FEDERAL EFFLUENT GUIDELINES FOR MEAT AND POULTRY PRODUCTS – 40 CFR PART 432 – SUBPART K (POULTRY FIRST PROCESSING)

Because George’s Chicken LLC slaughters more than 100 million lbs/yr (in units of Live Weight Killed), the discharge is subject to the Federal Effluent Guideline (FEG) for Meat and Poultry Products – 40CFR432 – Subpart K (Poultry First Processing). The following table shows the effluent limits attainable by the application of the best practical control technology available (BPT).

<u>Regulated parameter</u>	<u>Monthly Average</u> ¹	<u>Daily Maximum</u> ¹
Ammonia (as N)	4.0	8.0
BOD ₅	16	26
Fecal Coliform	(³)	(²)
Oil & Grease (as HEM)	8.0	14
TSS	20	30

¹ mg/L (ppm)

² Maximum of 400 MPN or CFU per 100 mL at any time

³ No monthly average limitation

The following table indicates the effluent limits attainable by the application of the best available technology economically achievable (BAT).

<u>Regulated parameter</u>	<u>Monthly Average</u> ¹	<u>Daily Maximum</u> ¹
Ammonia (as N)	4.0	8.0
Total Nitrogen	103	147

¹ mg/L (ppm)

The effluent limits attainable by the application of the best control technology for conventional pollutants (BCT) are the same as the BPT limitations for BOD₅, TSS, O&G (as HEM), and Fecal Coliform.

Because this facility is an existing direct discharger, it is subject to BPT, BAT, and BCT effluent limitations.

Any discharge subject to BPT, BCT, or NSPS limitations or standards in Part 432 must remain within the pH range of 6.0 to 9.0 SU.

EVALUATION OF THE EFFLUENT – FEDERAL EFFLUENT GUIDELINES FOR MEAT AND POULTRY PRODUCTS – 40 CFR PART 432 – SUBPART J (RENDERERS)

Because George’s Chicken LLC WWTP receives process wastewater from Mountain View Rendering, the FEGs for Subpart J (Renderers) were considered. Special definitions in Subpart J are:

- Raw material means the basic input materials to a renderer composed of animal and poultry trimmings, bones, meat scraps, dead animals, feathers and related usable by-products.
- Renderer means an independent or off-site rendering operation, which is conducted separate from a slaughterhouse, packinghouse or poultry dressing or processing operation, uses raw material at rates greater than 10 million lbs/yr, produces meat meal, tankage, animal fats or oils, grease, and tallow, and may cure cattle hides, but excludes marine oils, fish meal, and fish oils.

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Because Mountain View Rendering uses raw material at rates greater than 10 million lbs/yr, the discharge is subject to the Federal Effluent Guideline (FEG) for Meat and Poultry Products – 40CFR432 – Subpart J (Renderers). The following table shows the effluent limits attainable by the application of the best practical control technology available (BPT).

<u>Regulated parameter</u>	<u>Monthly Average</u> ¹	<u>Daily Maximum</u> ¹
BOD ₅	0.17	0.34
Fecal Coliform	(³)	(²)
Oil & Grease ⁴	0.10	0.20
TSS	0.21	0.42

¹ Pounds per 1000 lbs of raw material

² Maximum of 400 MPN or CFU per 100 mL at any time

³ No maximum monthly average limitation

⁴ May be measured as hexane extractable material (HEM)

The following table indicates the effluent limits attainable by the application of the best available technology economically achievable (BAT).

<u>Regulated parameter</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Ammonia (as N) ¹	0.07	0.14
Total Nitrogen ²	134	194

¹ Pounds per 1000 lbs of raw material

² mg/L (ppm)

The effluent limits attainable by the application of the best control technology for conventional pollutants (BCT) are the same as the BPT limitations for BOD₅, TSS, O&G, and Fecal Coliform.

Because this facility is an existing direct discharger, it is subject to BPT, BAT, and BCT effluent limitations.

Any discharge subject to BPT, BCT, or NSPS limitations or standards in Part 432 must remain within the pH range of 6.0 to 9.0 SU.

Information submitted with the 2015 application indicated that Mountain View Rendering processed 121,605,251 lbs of raw material in 2014.

EVALUATION OF THE EFFLUENT – FEDERAL EFFLUENT GUIDELINES FOR SECONDARY TREATMENT – 40CFR133

Sanitary wastewater is treated from George’s Chicken LLC, Mountain View Rendering, and private sewer customers including a mobile home park, two businesses, an apartment building, and six residences. The sanitary wastewater is comingled with the industrial wastewater. According to the application, the estimated sanitary wastewater flow is 0.0357 MGD.

The FEGs for sanitary wastewater are as follows:

- The 30-day average for BOD₅ and TSS shall not exceed 30 mg/L.
- The 7-day average for BOD₅ and TSS shall not exceed 45 mg/L.
- The pH must be in the range of 6.0 – 9.0 SU.

The WWTP has a design flow of 1.7 MGD. Because 90% of the flows treated through the WWTP are from poultry first processing, the FEGs for poultry first processing have been applied to Outfall 001. This is a conservative approach since the poultry first processing FEGs are equal to or more stringent than the renderers FEGs and the secondary treatment FEGs.

Fact Sheet – VPDES Permit No. VA0077402 – George’s Chicken, LLC

EVALUATION OF THE EFFLUENT – CBOD₅/BOD₅, TKN, and DO

The WQS require a DO of at least 6.0 mg/L for Stony Creek since it is classified as Stockable Trout Waters. The discharge was remodeled using the Regional DO Stream Model due to revised effluent temperature. The revised DO model is contained in the DEQ-Valley Regional Office DO Model files and is available for review.

The following inputs were used in the DO model:

CBOD₅: 9.6 mg/L

TKN: 5.9 mg/L

DO: 6.5 mg/L

As discussed later in the fact sheet, no toxicity-based Ammonia-N limits were determined to be necessary. The monthly average Ammonia-N limit at Outfall 001 based on the poultry first processing FEGs is 4.0 mg/L. DEQ’s Stat.exe program was utilized to determine the chronic WLA that would result in a monthly average Ammonia-N limit of 4.0 mg/L at Outfall 001 at a monitoring frequency of 1/Week. That WLA was determined to be 2.9 mg/L. Based on the calculated WLAc of 2.9 mg/L, the TKN in the model was set at $2.9 + 3 = 5.9$ mg/L. Because the modeled TKN is greater than two times the Ammonia WLAc calculated from the 4.0 mg/L limit, the Ammonia-N limits are deemed adequate for ensuring compliance with the modeled TKN value, and no TKN limits have been included in this permit. In addition, it is not expected that a WWTP that is designed to achieve an annual average TN concentration of 6.0 mg/L will discharge TKN in excess of 5.9 mg/L.

The Regional DO model assumes that the ratio of CBOD_u/CBOD₅ is 2.5. If the 2.5 ratio is used, the CBOD_u is calculated as follows:

$$\text{CBOD}_u = (\text{CBOD}_5)(2.5) = (9.6 \text{ mg/L})(2.5) = 24 \text{ mg/L}$$

A CBOD_u/CBOD₅ ratio of 3.4 was demonstrated at another poultry facility. Using the 3.4 ratio as a conservative approach, the CBOD₅ is back-calculated as follows:

$$\text{CBOD}_u = (\text{CBOD}_5)(3.4)$$

$$24 \text{ mg/L} = (\text{CBOD}_5)(3.4)$$

$$\text{CBOD}_5 = 24/3.4 = 7 \text{ mg/L}$$

Since the wastewater is primarily industrial, a scale up factor of 2 was used to calculate a daily maximum limit of 14 mg/L.

The CBOD₅/BOD₅ equivalence for municipal STPs is defined by Federal Regulations only at a CBOD₅ of 25 mg/L, which equates to a BOD₅ of 30 mg/L or a correlation of 0.83. During the previous permit reissuances per BPJ, this correlation was used to determine a CBOD₅ equivalent from the BOD₅ limitations listed in the poultry first processing FEGs. This approach has been carried forward at this reissuance. As shown below, the CBOD₅ limits determined to be necessary utilizing the Regional DO Stream Model are considered to be more restrictive than the first poultry processing FEG limits. The CBOD₅ (July – September) limits have been carried forward from the previous permit and applied year round at this reissuance. Although the CBOD₅ limits are more stringent during the October – June timeframe, a review of the compliance data indicates that the more stringent limits can be consistently met; therefore, a compliance schedule for meeting the more stringent limits has not been included in the permit.

	Calculated CBOD ₅ Model Limit	BOD ₅ FEG Limit	Calculated Equivalent CBOD ₅ FEG Limit
Monthly Average	7 mg/L	16 mg/L	$(16 \text{ mg/L})(0.83) = 13 \text{ mg/L}$
Daily Maximum	14 mg/L	26 mg/L	$(26 \text{ mg/L})(0.83) = 22 \text{ mg/L}$

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The CBOD₅ loading limits were calculated as follows:

Monthly Average CBOD₅ loading limit:

$(7 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 45.04 \text{ kg/d}$, round to 40 kg/d

Daily Maximum CBOD₅ loading limit:

$(14 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 90 \text{ kg/d}$

Within 30 days of the effective date of the permit, the permittee is required to submit for approval a plan for determining the site specific CBOD₅/BOD₅ and CBOD_u/CBOD₅ ratios for the effluent discharged from Outfall 001. This information will allow a more accurate analysis in future modeling of the permittee's effluent.

The monitoring frequency of 1/Week has carried forward from the previous permit based on a review of the CBOD₅ effluent data submitted during the previous permit term as well as the fact that the WWTP includes nutrient removal.

The DO minimum limit of 6.5 mg/L has been carried forward from the previous permit.

Evaluation of the Effluent – TKN:

The modeled TKN was 5.9 mg/L. The chronic Ammonia-N WLA is 2.9 mg/L. Two times the chronic Ammonia-N WLA is $(2)(2.9 \text{ mg/L}) = 5.8 \text{ mg/L}$. Because the modeled TKN of 5.9 mg/L is more than two times the calculated chronic Ammonia-N WLA of 5.8 mg/L, it was determined that no TKN limits were needed because the Ammonia-N limits imposed in this permit will control TKN; however, TKN monitoring is required in order to calculate TN.

As discussed later in the fact sheet, no toxicity-based Ammonia-N limits were determined to be necessary. The monthly average Ammonia-N limit at Outfall 001 based on the poultry first processing FEGs is 4.0 mg/L. DEQ's Stat.exe program was utilized to determine the chronic WLA that would result in a monthly average Ammonia-N limit of 4.0 mg/L at Outfall 001 at a monitoring frequency of 1/Week. That WLA was determined to be 2.9 mg/L. Based on the calculated WLAc of 2.9 mg/L, the TKN in the model was set at $2.9 + 3 = 5.9 \text{ mg/L}$. Because the modeled TKN is greater than two times the Ammonia WLAc calculated from the 4.0 mg/L limit, the Ammonia-N limits are deemed adequate for ensuring compliance with the modeled TKN value, and no TKN limits have been included in this permit. In addition, it is not expected that a WWTP that is designed to achieve an annual average TN concentration of 6.0 mg/L will discharge TKN in excess of 5.9 mg/L.

EVALUATION OF THE EFFLUENT – pH, OIL AND GREASE, AND FECAL COLIFORM

pH:

The WQS for pH in the receiving stream are 6.5 – 9.5 SU. The poultry first processing FEGs specify that the pH must be from 6.0 – 9.0 SU. A minimum pH limit of 6.5 SU and a maximum pH limit of 9.0 SU at Outfall 001 have been carried forward from the previous permit. The monitoring frequency of 1/Day has been carried forward from the previous permit because pH adjustment is a part of the treatment process at this facility.

Oil & Grease:

The poultry first processing FEGs specify a monthly average Oil & Grease limit of 8 mg/L and a daily maximum limit of 14 mg/L. Oil & Grease limits at Outfall 001 were calculated as follows:

Monthly Average TSS concentration limit = 8.0 mg/L

Monthly Average TSS loading limit = $(8.0 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 51.476 \text{ kg/d}$, round to 51 kg/d

Daily Maximum TSS concentration limit = 14 mg/L

Daily Maximum TSS loading limit = $(14 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 90.08 \text{ kg/d}$, round to 90 kg/d

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Fecal Coliform:

The Fecal Coliform limit is based on the poultry first processing FEGs and has been carried forward from the previous permit.

EVALUATION OF THE EFFLUENT – TSS

The Chesapeake Bay TMDL TSS WLA for this facility is based on a concentration of 20 mg/L and a design flow of 1.7 MGD

The poultry first processing FEGs specify a monthly average TSS limit of 20 mg/L and a daily maximum limit of 30 mg/L. TSS limits at Outfall 001 were calculated as follows:

Monthly Average TSS concentration limit = 20 mg/L

Monthly Average TSS loading limit = $(20 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 128.69 \text{ kg/d}$, round to 130 kg/d

Daily Maximum TSS concentration limit = 30 mg/L

Daily Maximum TSS loading limit = $(30 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 193.035 \text{ kg/d}$, round to 190 kg/d

EVALUATION OF THE EFFLUENT – DISINFECTION

The Stony Creek TMDL includes an E. coli WLA of 2.96×10^{12} cfu/day for this facility. Based on the facility’s current permitted flow tier of 1.7 MGD, the WLA corresponds to an E. coli concentration limit of 126 cfu/100 mL. Chlorination is currently utilized for disinfection. For this size facility, Guidance Memo No. 14-2003 recommends that no more than 12 TRC samples taken at the outlet of each operating chlorine contact tank, prior to dechlorination, shall be less than 1.0 mg/L for any one calendar month and that no TRC samples shall be less than 0.6 mg/L. The permittee previously requested that the minimum TRC at the outlet of the chlorine contact tank be set at 0.5 mg/L rather than 1.0 mg/L. The E. coli data demonstrate that the TRC minimum of 0.5 mg/L is sufficiently restrictive to accomplish adequate disinfection. As has been done in previous permits, no exceedances of the 0.5 mg/L minimum TRC limit have been authorized in the permit.

In addition to minimum TRC contact requirements, E. coli monitoring has been required 4/Month in any month of each calendar quarter to ensure adequate disinfection is being accomplished. The E. coli monitoring frequency has been changed from 2/Month to 4/Month in any month of each calendar quarter in accordance with Guidance Memo No. 14-2003. When an alternative to chlorination is utilized, E. coli monitoring is required 5/Week. The E. coli monitoring frequency has been increased from 3/Week to 5/Week in accordance with Guidance Memo No. 14-2003.

EVALUATION OF THE EFFLUENT – NUTRIENTS

In accordance with § 62.1-44.19:14.C.5. of the Code of Virginia, this Significant Discharger has submitted a Registration Statement and DEQ has recognized that they are covered under the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for TN and TP Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) (GP). The effective date of coverage under the GP was January 1, 2012. Coverage under the GP will expire December 31, 2016.

The Chesapeake Bay TMDL specifies WLAs for TN, TP that resulted from EPA’s evaluation of the jurisdictions’ final Phase I WIPs as described in Section 8 of the TMDL. Table 9-4 of Appendix Q of the TMDL contains the following WLAs for TP and TN for this discharge:

- TN = 31,065 lbs/yr
- TP = 1,553 lb/yr

These WLAs are identical to the TN and TP WLAs specified for this facility in the Registration List as part of the Nutrient General Permit Regulation at 9VAC25-820-70.

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Georges' Chicken LLC completed an upgrade to the existing 1.7 MGD WWTP for TN and TP removal on January 10, 2011. The upgraded WWTP was designed to achieve a TN = 6.0 mg/L and a TP = 0.3 mg/L. In accordance with 9VAC25-40-70, the technology-based annual average concentrations limits of TN = 6.0 mg/L and TP = 0.3 mg/L were previously imposed at Outfall 001. These limits have been carried forward at this reissuance.

Offset plans are required for facilities with increased loads. This facility was upgraded but did not increase its load; therefore, no offset plan is required. Prior to a facility expansion beyond 1.7 MGD, the permittee must demonstrate that sufficient WLAs have been acquired to offset any increase in the delivered TN and delivered TP loads. The CER requirement and the permit reopener condition ensure that the facility will receive appropriate concentration limits when necessary for expanded or upgraded facilities based on the treatment technology proposed.

EVALUATION OF THE EFFLUENT – TOTAL NITROGEN

TN Limits based on Poultry First Processing FEGs

The poultry first processing FEGs specify BAT limits for TN of monthly average 103 mg/L and daily maximum 147 mg/L. These limits are applicable at Outfall 001 as follows:

Monthly Average, mg/L = 103 mg/L

Monthly Average, kg/d = $(103 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 662.75 \text{ kg/d}$, round to 660 kg/d

Daily Maximum, mg/L = 147 mg/L

Daily Maximum, kg/d = $(147 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 945.87 \text{ kg/d}$, round to 946 kg/d because the concentration limit of 147 mg/L is 3 significant digits

In the previous permit, daily maximum TN limits were not included since the monthly average TN limit was so restrictive that the daily maximum limit could not be exceeded without exceeding the monthly average limit. In order to ensure that the requirements of the poultry first processing FEGs are met, daily maximum TN limits have been included at this reissuance.

Monthly Average TN Limits based on Nutrient Enriched Waters:

A revision to the WQS was approved on December 12, 2001, that designated Stony Creek as Nutrient Enriched Waters. As a result of this revision, the permittee was assigned the following monthly average TN limits:

Monthly Average TN concentration limit (April – October): 10 mg/L

Monthly Average TN loading limit (April – October): $(10 \text{ mg/L})(1.7 \text{ MGD})(3.785) = 64 \text{ kg/d}$

A revision to the WQS was approved on February 28, 2013, repealing the designation of Stony Creek as Nutrient Enriched Waters. Despite the repeal of the Nutrient Enriched Waters designation, monthly average TN limits must be included in the permit to comply with antibacksliding requirements.

The previous permit contained monthly average TN limits of 20 mg/L (130 kg/d) for the November – March season. These limits have been carried forward from the previous permit to comply with antibacksliding requirements.

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The monthly average TN limits were compared to the poultry first processing FEGs limits and the most restrictive limits were placed in the permit as follows:

	Limits Based on Antibalancing		Limits Based on FEGs		Most Restrictive Limits	
	mg/L	kg/d	mg/L	kg/d	mg/L	kg/d
Monthly Average TN (Apr-Oct)	10	64	103	660	10	64
Monthly Average TN (Nov-Mar)	20	130	103	660	20	130

The monitoring frequency of 2/Month has been carried forward from the previous permit to match the monitoring frequency specified in the VPDES Nutrient Trading Watershed General Permit

EVALUATION OF THE EFFLUENT – TOTAL PHOSPHORUS

The monthly average TP limit of 2.0 mg/L (13 kg/d) was previously established based on the Nutrient Enriched Waters designation. This limit has been carried forward in order to comply with antibalancing requirements. The monitoring frequency of 2/Month has been carried forward from the previous permit to match the monitoring frequency specified in the VPDES Nutrient Trading Watershed General Permit.

EVALUATION OF THE EFFLUENT – TEMPERATURE

Stony Creek is classified as Class V (Stockable Trout) Waters. Due to natural causes, Stony Creek does not always maintain the temperature standard of 21 °C for Class V Waters.

Monitoring Station (1BSTY005.85)			
July to September (Jul-Sep)		October to June (Oct-Jun)	
Percentage of times that Background Stream		Percentage of times that Background Stream	
Temp. > WQS (21 C) = 55%		Temp. > WQS (21 C) = 3.4%	

The WQS (9VAC25-260-250) address situations like this, and provide a basis for alternate effluent limitations based on the naturally occurring maximum stream temperature.

Following is a history of the Temperature Variance:

1. In 1994 a variance to the temperature standard was advertised and alternate temperature limitations were developed (32 °C-summer and 26 °C-winter). The variance was a case decision, the scope of which was defined by the fact sheet and the permit.
2. Based on an August 1995 temperature variance study of the stream conducted by Malcolm-Pirnie, and approved by DEQ, the end of the allowable mixing zone is approximately 1,100 feet downstream of Outfall 001. The permittee currently monitors the temperature in the receiving stream at two locations (1 above and 1 below Outfall 001). The upstream station is 300 feet upstream of Outfall 001. The downstream station is located 1,100 feet downstream of Outfall 001, at the end of the mixing zone. The requirement to sample these two monitoring stations 1/Week, year-round has been required in the permit since approval of the temperature variance to document that the change above background temperature does not exceed 3°C.
3. During the 1998 permit reissuance, DGIF requested that the maximum effluent summer temperature be lowered from what was allowed by the variance so that the potential of significant temperature elevation in the stream was minimized. This was taken into consideration and based on a mix temperature analysis of the discharge and the receiving stream, the temperature limit of 29 °C for the summer months of July – September was proposed. This temperature was below the level of 32 °C set by the original variance, and assisted with the DGIF’s objectives for the stream. The summer tier of July to September was specified since this period corresponded to a time when trout were not stocked in the stream.

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4. The permittee requested in both the 2010 permit reissuance application and the 2015 permit reissuance application that the summer temperature limit of 29 °C for the summer months of July to September be expanded to include June to September. The rationale for the request was that trout are not stocked in Stony Creek from June to September. DEQ has responded that in order to change the months in which the temperature variance was allowed would require a reevaluation of the 1994/1995 Temperature Variance by DGIF and DEQ. DGIF also commented that trout are stocked until late May sometimes and they want to provide a comfortable holdover temperature until mid-June; therefore, the temperature variance and following temperature effluent limits and have been carried forward from the previous permit.

Maximum Temperature (July to September)(Summer Season): 29 °C

Maximum Temperature (October to June)(Winter Season): 26 °C

The WQS limit the maximum hourly temperature change to less than or equal to 2 °C for Class V Waters. The facility monitors the temperature of the effluent continuously. Using the following formula, with the results presented in the accompanying table, the change in effluent temperature that would be required in one hour in order to cause a change in the stream mix temperature of 2 °C is shown.

$$T_{MIX} = (Q_E * T_E + Q_S * T_S) / (Q_E + Q_S)$$

$$T_{MIX@2} - T_{MIX@1} = 2 \text{ °C rise/hour}$$

where $T_{MIX@X}$ is the Mix Temperature at time-X

If the discharge flow (Q_E), stream flow (Q_S), and stream temperature (T_S) are assumed to remain constant over a one-hour period, the formula simplifies to:

$$(T_{E@2} - T_{E@1}) = 2 * (Q_E + Q_S) / Q_E$$

where $T_{E@X}$ is the Effluent Temperature at time-X

Season	Design Flow (MGD) (Q_E)	7Q10 (MGD) (Q_S)	Required Change in Effluent Temp. (°C) ($T_{E@2} - T_{E@1}$)
Jul-Sep	1.7	2.61	5.1
Oct-Jun	1.7	3.60	6.2

Discussions with the WWTP operator indicate that changes in the temperature of the effluent greater than 1 °C typically take several hours to all day, and that a review of the records does not indicate hourly changes of the magnitudes listed in the table. At the 90th percentile discharge flow (1.24 MGD), the change in effluent temperature required to cause a change in the stream mix temperature is even greater than at the design flow. Since the discharge flow (Q_E) is relatively stable and is not anticipated to change significantly from the 90th percentile value, any increase in stream flow (Q_S) above the 7Q10 means the effluent temperature (T_E) would have to change even more (assuming stream temperature (T_S) is stable for one hour). Based on this, and as was done at the previous reissuance, a specific requirement for the 2 °C maximum hourly temperature change has not been included in the permit.

The WQS also limit the maximum change above background temperature to less than or equal to 3 °C for Class V Waters. As stated at the beginning of this section, Stony Creek does not always maintain the temperature standard of 21 °C for Class V Waters due to natural causes. The permittee currently monitors the temperature in the receiving stream at two locations (1 above and 1 below Outfall 001). Based on a review of past monitoring data, the facility has not exceeded the 3 °C maximum temperature change limit; therefore, the condition limiting the rise above background temperature to 3 °C and the monitoring frequency of 1/Week at these two monitoring stations have been carried forward from the previous permit.

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EVALUATION OF THE EFFLUENT – TOXICS:

Stream: Water quality data for the receiving stream were obtained from Ambient Monitoring Station No. 1BSTY005.85 on Stony Creek approximately 1.4 miles upstream of Route 682.

Stream Information			
90% Annual Temp (°C) =	23	90% pH (SU) =	8.6
Mean Hardness (mg/L) =	89	10% pH (SU) =	7.7

All toxic pollutants, including Ammonia-N and TRC, are assumed absent in the receiving stream because there are no data for these parameters directly above the discharge.

Discharge: The pH values were obtained from January 2013 to October 2014 operating logs. The annual temperature value was based on the temperature limit of 29°C for the July – September season. No new data were available for effluent hardness, so the values were carried forward from the previous fact sheet.

Effluent Information			
Annual Temp Limit (°C) =	29	90% pH (SU) =	7.63
Mean Hardness (mg/L) =	396	10% pH (SU) =	7.04

WQC and WLAs were calculated for the WQS parameters for which data is available. Those WQC and WLAs are presented in this appendix.

Since chlorine is used for disinfection, a TRC concentration of 20 mg/L was used as a default effluent concentration in order to calculate effluent TRC limits. Guidance Memo No. 00-2011 recommend the evaluation of toxic pollutant limits for Ammonia-N for municipal WWTPs based on a default effluent concentration of 9 mg/L and for industrial WWTPs based on actual effluent Ammonia-N data, if available. Ammonia-N was analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results for Outfall 001:

- TRC: The monitoring frequency for TRC has been increased from 1/Day to 4/Day to match the chlorine contact tank monitoring frequency per Guidance Memo No. 14-2003. A more stringent monthly average TRC limit was determined to be necessary, while the daily maximum TRC limit is unchanged and has been carried forward. The facility is currently equipped with dechlorination; therefore, no schedule of compliance for meeting the more stringent monthly average limit has been included.
- The water-quality based monthly average and daily maximum Ammonia-N limits were compared to the poultry first processing FEGs monthly average limit of 4.0 mg/L and the daily maximum limit of 8.0 mg/L, and the most restrictive values were imposed in the permit. Effluent data for Ammonia-N over the past 2 years did not trigger a permit limit using Stat.exe; however, in 2012, there was a plant upset and Ammonia-N was present in the discharge in elevated concentrations. Therefore, Stat.exe was run using a default Ammonia concentration of 40 mg/L in order to generate a permit limit. A more stringent daily maximum Ammonia-N limit was determined to be necessary during this reissuance and has been included. The comparisons between water quality-based limits and ELG limits are shown below:

	WQS-Based	Limits Based on	Most Restrictive
Monthly average Ammonia-N	4.97 mg/L	4.0 mg/L	4.0 mg/L
Daily maximum Ammonia-N	7.3 mg/L	8.0 mg/L	7.3 mg/L

A review of the effluent data for Ammonia-N indicate that the more stringent daily maximum limit can be met; therefore, no schedule of compliance for meeting the more stringent daily maximum limit has been included.

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WQC-WLA SPREADSHEET INPUT:

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS			
Facility Name: Georges Chicken LLC		Permit No.: VA0077402	Version: OWP Guidance Memo 00-2011 (8/24/00)
Receiving Stream: Stony Creek		Date: 3/17/2015	

Stream Information	Stream Flows	Mixing Information	Effluent Information
Mean Hardness (as CaCO ₃) = 89 mg/L	1Q10 (Annual) = 2.35 MGD	Annual - 1Q10 Flow = 66.13 %	Mean Hardness (as CaCO ₃) = 396 mg/L
90% Temperature (Annual) = 23 deg C	7Q10 (Annual) = 2.61 MGD	- 7Q10 Flow = 100 %	90% Temp (Annual) = 29 deg C
90% Temperature (Wet season) = 23 deg C	30Q10 (Annual) = 3.32 MGD	- 30Q10 Flow = 100 %	90% Temp (Wet season) = 29 deg C
90% Maximum pH = 8.6 SU	1Q10 (Wet season) = 2.35 MGD	Wet Season - 1Q10 Flow = 66.13 %	90% Maximum pH = 7.63 SU
10% Maximum pH = 7.7 SU	30Q10 (Wet season) = 3.32 MGD	- 30Q10 Flow = 100 %	10% Maximum pH = 7.04 SU
Tier Designation = 1	30Q5 = 3.87 MGD		Current Discharge Flow = 1.7 MGD
Public Water Supply (PWS) Y/N? N	Harmonic Mean = 11.3 MGD		Discharge Flow for Limit Analysis 1.7 MGD
V(alley) or P(iedmont)? = V			
Trout Present Y/N? = N			
Early Life Stages Present Y/N? = N			

Footnotes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
2. All flow values are expressed as Million Gallons per Day (MGD).
3. Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipalities.
4. Hardness expressed as mg/l CaCO₃. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO₃.
5. "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
6. Carcinogen "Y" indicates carcinogenic parameter.
7. Ammonia WQs selected from separate tables, based on pH and temperature.
8. Metals measured as Dissolved, unless specified otherwise.
9. WLA = Waste Load Allocation (based on standards).

10. WLA – Waste Load Allocation (based on standards).
11. WLAs are based on mass balances (less background, if data exist).
12. Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.
13. Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.
14. Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
15. Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT:

<u>Facility Name:</u> Georges Chicken LLC		<u>Permit No.:</u> VA0077402		WATER QUALITY CRITERIA 1.7 MGD Discharge Flow - Mix per "Mixer"				NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS 1.7 MGD Discharge - Mix per "Mixer"			
<u>Receiving Stream:</u> Stony Creek		<u>Date:</u> 3/13/2015									
<u>Toxic Parameter and Form</u>	<u>Carcinogen?</u>	<u>Aquatic Protection</u>		<u>Human Health</u>		<u>Aquatic Protection</u>		<u>Human Health</u>			
		<u>Acute</u>	<u>Chronic</u>	<u>Public Water Supplies</u>	<u>Other Surface Waters</u>	<u>Acute</u>	<u>Chronic</u>	<u>Human Health</u>			
		Ammonia-N (Annual)	N	7.1E+00 mg/L	1.2E+00 mg/L	None	None	1.4E+01 mg/L	3.6E+00 mg/L	N/A	
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None	None	3.6E-02 mg/L	2.8E-02 mg/L	N/A			

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PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh} , the WLA_{hh} was imposed as the limit.

Since there are no data available for any toxic pollutants immediately upstream of this discharge, all upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating the effluent data are as follows:

- A. If all data are reported as "below detection" or $<$ the required Quantification Level (QL), and at least one detection level is \leq the required QL, then the pollutant is considered to be not significantly present in the discharge and no further monitoring is required.
- B. If all data are reported as "below detection", and all detection levels are $>$ the required QL, then an evaluation is performed in which the pollutant is assumed present at the lowest reported detection level.
 - B.1. If the evaluation indicates that no limits are needed, then the existing data set is adequate and no further monitoring is required.
 - B.2. If the evaluation indicates that limits are needed, then the existing data set is inadequate to make a determination and additional monitoring is required.
- C. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.
 - C.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.
 - C.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.
 - C.3. (Exception for Metals data only) If the evaluation indicates that limits are needed, but the data are reported as a form other than "Dissolved" (except for Selenium), then the existing data set is inadequate to make a determination and additional monitoring is required.

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
METALS					
Antimony, dissolved	7440-36-0	0.2	Previously evaluated, no further monitoring required	---	---
Arsenic, dissolved	7440-38-2	1.0	Previously evaluated, no further monitoring required	---	---
Barium, dissolved	7440-39-3	---	Applicable to PWS waters only	---	---
Cadmium, dissolved	7440-43-9	0.3	Previously evaluated, no further monitoring required	---	---
Chromium III, dissolved	16065-83-1	0.5	Previously evaluated, no further monitoring required	---	---
Chromium VI, dissolved	18540-29-9	0.5	Previously evaluated, no further monitoring required	---	---
Chromium, Total	7440-47-3	---	Applicable to PWS waters only	---	---
Copper, dissolved	7440-50-8	0.5	Previously evaluated, no further monitoring required	---	---
Iron, dissolved	7439-89-6	1.0	Applicable to PWS waters only	---	---
Lead, dissolved	7439-92-1	0.5	Previously evaluated, no further monitoring required	---	---
Manganese, dissolved	7439-96-5	0.2	Applicable to PWS waters only	---	---
Mercury, dissolved	7439-97-6	1.0	Previously evaluated, no further monitoring required	---	---
Nickel, dissolved	7440-02-0	0.5	Previously evaluated, no further monitoring required	---	---
Selenium, total recoverable	7782-49-2	2.0	Previously evaluated, no further monitoring required	---	---
Silver, dissolved	7440-22-4	0.2	Previously evaluated, no further monitoring required	---	---
Thallium, dissolved	7440-28-0	---	Previously evaluated, no further monitoring required	---	---
Zinc, dissolved	7440-66-6	2.0	Previously evaluated, no further monitoring required	---	---
PESTICIDES/PCBS					
Aldrin ^C	309-00-2	0.05	Previously evaluated, no further monitoring required	---	---
Chlordane ^C	57-74-9	0.2	Previously evaluated, no further monitoring required	---	---
Chlorpyrifos	2921-88-2	(5)	Previously evaluated, no further monitoring required	---	---
DDD ^C	72-54-8	0.1	Previously evaluated, no further monitoring required	---	---
DDE ^C	72-55-9	0.1	Previously evaluated, no further monitoring required	---	---
DDT ^C	50-29-3	0.1	Previously evaluated, no further monitoring required	---	---
Demeton	8065-48-3	---	Previously evaluated, no further monitoring required	---	---
Diazinon	333-41-5	---	<1	b	A
Dieldrin ^C	60-57-1	0.1	Previously evaluated, no further monitoring required	---	---
Alpha-Endosulfan	959-98-8	0.1	Previously evaluated, no further monitoring required	---	---
Beta-Endosulfan	33213-65-9	0.1	Previously evaluated, no further monitoring required	---	---
Alpha-Endosulfan + Beta-Endosulfan		---	Previously evaluated, no further monitoring required	---	---
Endosulfan Sulfate	1031-07-8	0.1	Previously evaluated, no further monitoring required	---	---
Endrin	72-20-8	0.1	Previously evaluated, no further monitoring required	---	---
Endrin Aldehyde	7421-93-4	---	Previously evaluated, no further monitoring required	---	---
Guthion	86-50-0	---	Previously evaluated, no further monitoring required	---	---
Heptachlor ^C	76-44-8	0.05	Previously evaluated, no further monitoring required	---	---
Heptachlor Epoxide ^C	1024-57-3	---	Previously evaluated, no further monitoring required	---	---
Hexachlorocyclohexane Alpha-BHC ^C	319-84-6	---	Previously evaluated, no further monitoring required	---	---
Hexachlorocyclohexane Beta-BHC ^C	319-85-7	---	Previously evaluated, no further monitoring required	---	---
Hexachlorocyclohexane Gamma-BHC (synonym = Lindane)	58-89-9	---	Previously evaluated, no further monitoring required	---	---
Kepone	143-50-0	---	Previously evaluated, no further monitoring required	---	---
Malathion	121-75-5	---	Previously evaluated, no further monitoring required	---	---
Methoxychlor	72-43-5	---	Previously evaluated, no further monitoring required	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Mirex	2385-85-5	---	Previously evaluated, no further monitoring required	---	---
Parathion	56-38-2	---	Previously evaluated, no further monitoring required	---	---
PCB Total ^C	1336-36-3	7.0	Previously evaluated, no further monitoring required	---	---
Toxaphene ^C	8001-35-2	5.0	Previously evaluated, no further monitoring required	---	---
BASE NEUTRAL EXTRACTABLES					
Acenaphthene	83-32-9	10.0	Previously evaluated, no further monitoring required	---	---
Anthracene	120-12-7	10.0	Previously evaluated, no further monitoring required	---	---
Benzidine ^C	92-87-5	---	Previously evaluated, no further monitoring required	---	---
Benzo (a) anthracene ^C	56-55-3	10.0	Previously evaluated, no further monitoring required	---	---
Benzo (b) fluoranthene ^C	205-99-2	10.0	Previously evaluated, no further monitoring required	---	---
Benzo (k) fluoranthene ^C	207-08-9	10.0	Previously evaluated, no further monitoring required	---	---
Benzo (a) pyrene ^C	50-32-8	10.0	Previously evaluated, no further monitoring required	---	---
Bis 2-Chloroethyl Ether ^C	111-44-4	---	Previously evaluated, no further monitoring required	---	---
Bis 2-Chloroisopropyl Ether	108-60-1	---	Previously evaluated, no further monitoring required	---	---
Bis-2-Ethylhexyl Phthalate ^C	117-81-7	10.0	Previously evaluated, no further monitoring required	---	---
Butyl benzyl phthalate	85-68-7	10.0	Previously evaluated, no further monitoring required	---	---
2-Chloronaphthalene	91-58-7	---	Previously evaluated, no further monitoring required	---	---
Chrysene ^C	218-01-9	10.0	Previously evaluated, no further monitoring required	---	---
Dibenz(a,h)anthracene ^C	53-70-3	20.0	Previously evaluated, no further monitoring required	---	---
1,2-Dichlorobenzene	95-50-1	10.0	Previously evaluated, no further monitoring required	---	---
1,3-Dichlorobenzene	541-73-1	10.0	Previously evaluated, no further monitoring required	---	---
1,4-Dichlorobenzene	106-46-7	10.0	Previously evaluated, no further monitoring required	---	---
3,3-Dichlorobenzidine ^C	91-94-1	---	Previously evaluated, no further monitoring required	---	---
Diethyl phthalate	84-66-2	10.0	Previously evaluated, no further monitoring required	---	---
Dimethyl phthalate	131-11-3	---	Previously evaluated, no further monitoring required	---	---
Di-n-Butyl Phthalate	84-74-2	10.0	Previously evaluated, no further monitoring required	---	---
2,4-Dinitrotoluene	121-14-2	10.0	Previously evaluated, no further monitoring required	---	---
1,2-Diphenylhydrazine ^C	122-66-7	---	Previously evaluated, no further monitoring required	---	---
Fluoranthene	206-44-0	10.0	Previously evaluated, no further monitoring required	---	---
Fluorene	86-73-7	10.0	Previously evaluated, no further monitoring required	---	---
Hexachlorobenzene ^C	118-74-1	---	Previously evaluated, no further monitoring required	---	---
Hexachlorobutadiene ^C	87-68-3	---	Previously evaluated, no further monitoring required	---	---
Hexachlorocyclopentadiene	77-47-4	---	Previously evaluated, no further monitoring required	---	---
Hexachloroethane ^C	67-72-1	---	Previously evaluated, no further monitoring required	---	---
Indeno(1,2,3-cd)pyrene ^C	193-39-5	20.0	Previously evaluated, no further monitoring required	---	---
Isophorone ^C	78-59-1	10.0	Previously evaluated, no further monitoring required	---	---
Nitrobenzene	98-95-3	10.0	Previously evaluated, no further monitoring required	---	---
N-Nitrosodimethylamine ^C	62-75-9	---	Previously evaluated, no further monitoring required	---	---
N-Nitrosodi-n-propylamine ^C	621-64-7	---	Previously evaluated, no further monitoring required	---	---
N-Nitrosodiphenylamine ^C	86-30-6	---	Previously evaluated, no further monitoring required	---	---
Pyrene	129-00-0	10.0	Previously evaluated, no further monitoring required	---	---
1,2,4-Trichlorobenzene	120-82-1	10.0	Previously evaluated, no further monitoring required	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
VOLATILES					
Acrolein	107-02-8	---	Previously evaluated, no further monitoring required	---	---
Acrylonitrile ^C	107-13-1	---	Previously evaluated, no further monitoring required	---	---
Benzene ^C	71-43-2	10.0	Previously evaluated, no further monitoring required	---	---
Bromoform ^C	75-25-2	10.0	Previously evaluated, no further monitoring required	---	---
Carbon Tetrachloride ^C	56-23-5	10.0	Previously evaluated, no further monitoring required	---	---
Chlorobenzene	108-90-7	50.0	Previously evaluated, no further monitoring required	---	---
Chlorodibromomethane ^C	124-48-1	10.0	Previously evaluated, no further monitoring required	---	---
Chloroform	67-66-3	10.0	Previously evaluated, no further monitoring required	---	---
Dichlorobromomethane ^C	75-27-4	10.0	Previously evaluated, no further monitoring required	---	---
1,2-Dichloroethane ^C	107-06-2	10.0	Previously evaluated, no further monitoring required	---	---
1,1-Dichloroethylene	75-35-4	10.0	Previously evaluated, no further monitoring required	---	---
1,2-trans-dichloroethylene	156-60-5	---	Previously evaluated, no further monitoring required	---	---
1,2-Dichloropropane ^C	78-87-5	---	Previously evaluated, no further monitoring required	---	---
1,3-Dichloropropene ^C	542-75-6	---	Previously evaluated, no further monitoring required	---	---
Ethylbenzene	100-41-4	10.0	Previously evaluated, no further monitoring required	---	---
Methyl Bromide	74-83-9	---	Previously evaluated, no further monitoring required	---	---
Methylene Chloride ^C	75-09-2	20.0	Previously evaluated, no further monitoring required	---	---
1,1,2,2-Tetrachloroethane ^C	79-34-5	---	Previously evaluated, no further monitoring required	---	---
Tetrachloroethylene	127-18-4	10.0	Previously evaluated, no further monitoring required	---	---
Toluene	10-88-3	10.0	Previously evaluated, no further monitoring required	---	---
1,1,2-Trichloroethane ^C	79-00-5	---	Previously evaluated, no further monitoring required	---	---
Trichloroethylene ^C	79-01-6	10.0	Previously evaluated, no further monitoring required	---	---
Vinyl Chloride ^C	75-01-4	10.0	Previously evaluated, no further monitoring required	---	---
RADIONUCLIDES					
Beta Particle & Photon Activity (mrem/yr)	N/A	---	Applicable to PWS waters only	---	---
Combined Radium 226 and 228 (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Gross Alpha Particle Activity (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Uranium	N/A	---	Applicable to PWS waters only	---	---
ACID EXTRACTABLES					
2-Chlorophenol	95-57-8	10.0	Previously evaluated, no further monitoring required	---	---
2,4-Dichlorophenol	120-83-2	10.0	Previously evaluated, no further monitoring required	---	---
2,4-Dimethylphenol	105-67-9	10.0	Previously evaluated, no further monitoring required	---	---
2,4-Dinitrophenol	51-28-5	---	Previously evaluated, no further monitoring required	---	---
2-Methyl-4,6-Dinitrophenol	534-52-1	---	Previously evaluated, no further monitoring required	---	---
Nonylphenol	104-40-51	---	<5	b	A
Pentachlorophenol ^C	87-86-5	50.0	Previously evaluated, no further monitoring required		
Phenol	108-95-2	10.0	Previously evaluated, no further monitoring required		
2,4,6-Trichlorophenol ^C	88-06-2	10.0	Previously evaluated, no further monitoring required		
MISCELLANEOUS					
Ammonia-N (mg/L)	766-41-7	0.2 mg/L	Default = 40 mg/L (See Ammonia-N discussion in Appendix C)	a	C.2
Chloride (mg/L)	16887-00-6	---	Previously evaluated, no further monitoring required	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	C.2
Cyanide, Free	57-12-5	10.0	Previously evaluated, no further monitoring required	---	---
2,4-Dichlorophenoxy acetic acid (synonym = 2,4-D)	94-75-7	---	Applicable to PWS waters only	---	---
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin)(ppq)	1746-01-6	0.01	Applicable to Paper Mills & Oil Refineries only	---	---
Foaming Agents (as MBAS)	N/A	---	Applicable to PWS waters only	---	---
Sulfide, dissolved	18496-25-8	100	<50	b	A
Hydrogen Sulfide	7783064	---	Previously evaluated, no further monitoring required	---	---
Nitrate as N (mg/L)	14797-55-8	---	Applicable to PWS waters only	---	---
Sulfate (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Total Dissolved Solids (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Tributyltin	60-10-5	---	Previously evaluated, no further monitoring required	---	---
2-(2,4,5-Trichlorophenoxy) propionic acid (synonym = Silvex)	93-72-1	---	Applicable to PWS waters only	---	---
Hardness (mg/L as CaCO ₃)	471-34-1	---	No testing required	---	---

The **superscript "C"** following the parameter name indicates that the substance is a known or suspected carcinogen; human health criteria at risk level 10⁻⁵.

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

“Source of Data” codes:

a = default effluent concentration

b = Attachment A monitoring received with permit application on 10/28/14

“Data Evaluation” codes:

See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

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STAT.EXE RESULTS:

<p>Chemical = TRC Chronic averaging period = 4 WLAa = 0.036 WLAc = 0.028 Q.L. = 0.1 # samples/mo. = 120 # samples/wk. = 28</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Acute Toxicity Maximum Daily Limit = 0.036 Average Weekly limit = 1.81821293872024E-02 Average Monthly Limit = 1.63181852909765E-02</p> <p>The data are: 20</p>	
<p>Chemical = Ammonia Chronic averaging period = 30 WLAa = 14 WLAc = 3.6 Q.L. = 0.2 # samples/mo. = 4 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 40 Variance = 576 C.V. = 0.6 97th percentile daily values = 97.3367 97th percentile 4 day average = 66.5516 97th percentile 30 day average= 48.2421 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Chronic Toxicity Maximum Daily Limit = 7.26361233629871 Average Weekly limit = 7.26361233629871 Average Monthly Limit = 4.96631858794193</p> <p>The data are: 40</p>	<p>Chemical = Ammonia Chronic averaging period = 30 WLAa = WLAc = 2.9 (Calculated WLA) * Q.L. = 0.2 # samples/mo. = 4 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 4 Variance = 5.76 C.V. = 0.6 97th percentile daily values = 9.73367 97th percentile 4 day average = 6.65516 97th percentile 30 day average= 4.82421 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Chronic Toxicity Maximum Daily Limit = 5.8512432709073 Average Weekly limit = 5.8512432709073 Average Monthly Limit = 4.00064552917544</p> <p>The data are: 4</p> <p>* The monthly average Ammonia-N limit based on the Poultry Processing ELGs is 4.0 mg/L. The Department’s Stat.exe program was utilized to determine the chronic WLA that would result in a monthly average Ammonia-N limit of 4.0 mg/L. The calculated WLA of 2.9 mg/L was used to set the TKN used in the DO model.</p>

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WHOLE EFFLUENT TOXICITY (WET) EVALUATION:

Applicability of TMP: The applicability criteria for a facility to perform toxicity testing is contained in the Departments Guidance Memo No. 00-2012, Toxics Management Program Implementation Guidance, 08/24/00, Part IV. The Standard Industrial Code (SIC) for George's Chicken LLC is 2015, Poultry Processing which is included in Appendix A of the TMP Guidance. In addition, the Instream Waste Concentration (IWC) is greater than or equal to 33% (GM 00-2012, Sections IV.1.A. and IV.1.B, respectively).

Summary of Toxicity Testing: The previous permit required annual chronic testing using *Ceriodaphnia dubia* and *Pimephales promelas*. There was also 1 acute toxicity test available for review which the permittee did as extra testing. Tables 1 and 2 contain a summary of the toxicity testing results during the term of the permit. These data were evaluated using the procedures outlined in the TMP guidance.

Rationale for Acute versus Chronic Toxicity Testing: The previous permit required chronic toxicity testing only. Table 1 indicates that the 48-hour LC₅₀ was > 100% in all of the chronic toxicity tests of the current permit term; therefore, no acute toxicity testing is required in the reissued permit. The permit contains language that should chronic WET monitoring result in a 48-hour LC₅₀ ≤ 100% effluent, the permittee must commence acute toxicity testing.

Criteria for Acute Toxicity Testing: The IWC_a is > 33% so the tests are based on the calculation of a valid NOAEC.

Sample Type: A sample type of 24 hour composite is representative of the discharge.

Monitoring Period: The previous permit required that the annual monitoring be conducted during the months of July to September based on the temperature tier period, as well as the potential for encountering low-flow stream conditions. There is no information that the sampling period should be July to September based on plant operations. Since the permit evaluation is already based on the low flow stream conditions, the annual monitoring can be performed at any time during each calendar year.

Calculation of WLAs: Acute and chronic WLAs were generated from the WETLimit10.xls spreadsheet by entering the design flow, stream flows, and stream mix percentages for the respective stream flows.

The January 13, 2015 Flow Frequency Determination indicates the 7Q10 and 1Q10 of the receiving stream for the months of July-September and October - June based on a previously approved temperature study. For purposes of the TMP evaluation, the 7Q10 and 1Q10 for the months of July – September (2.61 MGD and 2.35 MGD, respectively) will be used because these flows represent the low flow conditions.

Chronic Dilution Series: The recommended chronic dilution series is contained in Table 3.

Stat.exe Limit Evaluation: The WLAs are used in the Department's Stat.exe program in order to perform a statistical evaluation of the acute and chronic test results expressed as Toxicity Units (TUs). The toxicity data are analyzed separately by species and test type (acute or chronic).

Chronic Stat.exe Limit Evaluation: The summary of the chronic toxicity testing data are shown in Table 1. The results of the Stat.exe evaluation are shown in Table 4. Based on the evaluation of the chronic toxicity data, a Whole Effluent Toxicity (WET) Limit is not required at this time.

Acute Stat.exe Limit Evaluation: The summary of the acute toxicity testing data in Table 2 shows that the No Observed Adverse Effects Concentration (NOAEC) in every test was 100%. The acute toxicity data were not run through Stat.exe, because all of the data were greater than the WLAA of 0.574245 and would have automatically triggered a limit; however, an acute WET limit is not required since all of the data were NOAEC = 100%, which meets the permit criteria for the acute tests.

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Based on the evaluation of the acute toxicity data, no acute limit is necessary and acute monitoring is not required. Since future chronic test data can be assessed to some degree for the presence of acute toxicity, the permit can be modified, if necessary, to include acute monitoring or an acute WET limit.

Midpoint Check Stat.exe Evaluation:

As stated previously, the midpoint of the chronic dilution series is $TUc = 1.52$. The midpoint of the chronic test dilution series was evaluated using Stat.exe to determine if limits would be inappropriately triggered (Table 4). The midpoint was entered as a chronic Toxicity Unit (TUc). Since no limit was triggered by the midpoint, the recommended dilution series can be used without the need for adjustment. The midpoint of 66% is considered the NOEC and is equivalent to a TUc of 1.52.

Most Sensitive Species Evaluation:

The average percent survival in 100% effluent for all of the chronic toxicity tests for *P. promelas* were $\geq 80\%$ in all of the tests conducted during the previous permit term. Therefore, *C. dubia* is selected as the most-sensitive species at this reissuance. Chronic toxicity testing for *P. promelas* will not be required.

Outfall 004: Toxics monitoring of this outfall is not believed necessary at this time because it consists of solely stormwater.

Peer Reviewer: Dawn Jeffries

Date: February 13, 2015

Table 1
Summary of Chronic Toxicity Testing

Monitoring Period	Test Date	Chronic 3-Brood Static Renewal Survival and Reproduction <i>Ceriodaphnia dubia</i> (TUc)			Chronic 7-Day Static Renewal Survival and Growth <i>Pimephales promelas</i> (TUc)			
		Survival (TUc)	Repro (TUc)	48-hr LC ₅₀	Survival (TUc)	Growth (TUc)	48-hr LC ₅₀	% Survival in 100% Effluent
1 st Annual	7/28/10	1.0	1.22	>100	1.0	1.0	>100	100
2 nd Annual	8/17/11	1.0	1.0	>100	1.0	1.0	>100	95
3 rd Annual	8/28/12	1.0	1.0	>100	1.0	1.0	>100	100
4 th Annual	8/19/13	1.0	1.0	>100	1.0	1.0	>100	87.5
5 th Annual	8/1/14	1.0	1.0	>100	1.0	1.0	>100	100

Table 2
Summary of Acute Toxicity Testing (NOAEC)

Monitoring Period	Test Date	48-Hr. Static Acute <i>Ceriodaphnia dubia</i> (%)	48-Hr Static Acute <i>Pimephales promelas</i> (%)
1 st Annual	08/17/11	100	100

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Table 3 -WETLim10.xls Spreadsheet

Spreadsheet for determination of WET test endpoints or WET limits										
Excel 97		Acute Endpoint/Permit Limit		Use as LC ₅₀ in Special Condition, as TU _a on DMR						
Revision Date: 12/13/13		ACUTE		100% =	NOAEC	LC ₅₀ =	NA	% Use as	NA	TU _a
File: WETLIM10.xls		ACUTE WLA _a		0.574245	Note: Inform the permittee that if the mean of the data exceeds this TU _a : 1.0 a limit may result using STATS.EXE					
(MIX.EXE required also)		Chronic Endpoint/Permit Limit		Use as NOEC in Special Condition, as TU _c on DMR						
		CHRONIC		3.70805699	TU _c	NOEC =	27	% Use as	3.70	TU _c
		BOTH*		5.74245014	TU _c	NOEC =	18	% Use as	5.55	TU _c
		AML		3.70805699	TU _c	NOEC =	27	% Use as	3.70	TU _c
Enter data in the cells with blue type:		ACUTE WLA _{a,c}		5.74245	Note: Inform the permittee that if the mean of the data exceeds this TU _c : 1.52380626 a limit may result using STATS.EXE					
Entry Date: 02/12/15		CHRONIC WLAc		2.53529412						
Facility Name: Georges Chicken LLC		* Both means acute expressed as chronic								
VPDES Number: VA0077402		% Flow to be used from MIX.EXE		Diffuser /modeling study?						
Outfall Number: 001				Enter Y/N n						
Plant Flow: 1.7 MGD		66.13 %		Acute 1 :1						
Acute 1Q10: 2.35 MGD		100 %		Chronic 1 :1						
Chronic 7Q10: 2.61 MGD										
Are data available to calculate CV? (Y/N)		N		(Minimum of 10 data points, same species, needed)				Go to Page 2		
Are data available to calculate ACR? (Y/N)		N		(NOEC<LC50, do not use greater/less than data)				Go to Page 3		
IWC _a		52.24250973 %		Plant flow/plant flow + 1Q10		NOTE: If the IWC _a is >33%, specify the NOAEC = 100% test/endpoint for use				
IWC _c		39.44315545 %		Plant flow/plant flow + 7Q10						
Dilution, acute		1.91415		100/IWC _a						
Dilution, chronic		2.535294118		100/IWC _c						
WLA _a		0.574245		Instream criterion (0.3 TU _a) X's Dilution, acute						
WLA _c		2.535294118		Instream criterion (1.0 TU _c) X's Dilution, chronic						
WLA _{a,c}		5.74245		ACR X's WLA _a - converts acute WLA to chronic units						
ACR -acute/chronic ratio		10		LC50/NOEC (Default is 10 - if data are available, use tables Page 3)						
CV-Coefficient of variation		0.6		Default of 0.6 - if data are available, use tables Page 2)						
Constants eA		0.4109447		Default = 0.41						
eB		0.6010373		Default = 0.60						
eC		2.4334175		Default = 2.43						
eD		2.4334175		Default = 2.43 (1 samp)						
				No. of samples		1		**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA _{a,c} and MDL using it are driven by the ACR.		
LTA _{a,c}		2.359829393		WLA _{a,c} X's eA						
LTA _c		1.523806331		WLAc X's eB		Rounded NOEC's %				
MDL** with LTA _{a,c}		5.742450141		TU _c		NOEC = 17.414169		(Protects from acute/chronic toxicity) NOEC = 18 %		
MDL** with LTA _c		3.708056993		TU _c		NOEC = 26.968302		(Protects from chronic toxicity) NOEC = 27 %		
AML with lowest LTA		3.708056993		TU _c		NOEC = 26.968302		Lowest LTA X's eD NOEC = 27		
IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU _c to TU _a										
MDL with LTA _{a,c}		0.574245014		TU _a		LC50 = 174.141695 %		Use NOAEC=100% Rounded LC50's %		
MDL with LTA _c		0.370805699		TU _a		LC50 = 269.683018 %		Use NOAEC=100% LC50 = NA %		

CHRONIC DILUTION SERIES TO RECOMMEND					
		Monitoring		Limit	
		% Effluent	TU _c	% Effluent	TU _c
Dilution series based on data mean		66	1.52380626		
Dilution series to use for limit				27	3.70
Dilution factor to recommend:		0.81240384		0.519615242	
Dilution series to recommend:		100.0	1.00	100.0	1.00
		81.2	1.23	52.0	1.92
		66.0	1.52	27.0	3.70
		53.6	1.87	14.0	7.13
		43.6	2.30	7.3	13.72
Extra dilutions if needed		35.39	2.83	3.79	26.40
		28.75	3.48	1.97	50.81

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**Table 4
Stat.exe Results**

<p>Chemical = WET Chronic C. dubia Chronic averaging period = 4 WLAa,c = 5.74245 WLAc = 2.53529412 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 5 Expected Value = 1.044 Variance = .392376 C.V. = 0.6 97th percentile daily values = 2.54048 97th percentile 4 day average = 1.73699 97th percentile 30 day average= 1.25911 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1, 1, 1, 1, 1.22</p>	<p>Chemical = WET Chronic P promelas Chronic averaging period = 4 WLAa,c = 5.74245 WLAc = 2.53529412 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 5 Expected Value = 1 Variance = .36 C.V. = 0.6 97th percentile daily values = 2.43341 97th percentile 4 day average = 1.66379 97th percentile 30 day average= 1.20605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1, 1, 1, 1, 1</p>
<p>Facility = George's Chicken LLC Chemical = TUc - Midpoint Check Chronic averaging period = 4 WLAa,c = 5.74245 WLAc = 2.53529412 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 1.52 Variance = .831744 C.V. = 0.6 97th percentile daily values = 3.69879 97th percentile 4 day average = 2.52896 97th percentile 30 day average= 1.83320 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material</p> <p>The data are: 1.52</p>	

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APPENDIX D

BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page	<ul style="list-style-type: none">Content and format as prescribed by the VPDES Permit Manual.
Part I.A.1	<p>Effluent Limitations and Monitoring Requirements – Outfall 001: Bases for effluent limits are provided in previous pages of this fact sheet. Monitoring requirements as prescribed by the VPDES Permit Manual.</p> <p><i>Updates Part I.A.2 of the previous permit with the following:</i></p> <ul style="list-style-type: none">The sampling frequency for E. coli was increased from 2/Month to 4/Month, one month each quarter.The seasonal CBOD₅ limits were replaced with year round CBOD₅ limits.Monitoring for TKN and Nitrate-Nitrite (as N) was removed from the permit since these parameters are already reported under the Nutrient General Permit.The monthly average TRC limit decreased from 0.018 mg/L to 0.016 mg/L. The monitoring frequency for TRC increased from 1/Day to 4/Day at 4-hour intervals.The daily maximum Ammonia-N limit decreased from 8.0 mg/L to 7.3 mg/L.Daily maximum TN limits were added.Definitions for 2/Month, 4/Month in any month of each calendar quarter, and 1/Year were added.
Part I.A.2	<p>Effluent Limitations and Monitoring Requirements – Outfall 004 (soley stormwater outfall exposed to industrial activity): Bases for monitoring requirements are provided in previous pages of this fact sheet. Monitoring requirements as prescribed by the VPDES Permit Manual.</p> <p><i>Updates Part I.A.3 of the previous permit with the following:</i></p> <ul style="list-style-type: none">Monitoring requirements for TSS, TKN, Nitrite-N + Nitrate-N, TN and TP were included for Outfall 004 as this outfall discharges industrial stormwater.Benchmark monitoring for TSS, BOD₅, TKN, Nitrite-N + Nitrate-N and TN was included.
Part I.B	<p>Additional TRC and E coli Limitations and Monitoring Requirements: <i>Updates Part I.B of the permit with minor wording changes. Also, the E. coli monitoring frequency was changed from 3/Week to 5/Week. Required by Sewage Collection and Treatment (SCAT) Regulations, 9VAC25-790 and Water Quality Standards, 9VAC25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.</i></p>
Part I.C	<p>Effluent Limitations and Monitoring Requirements – Additional Instructions: <i>Updates Part I.C of the previous permit with minor wording changes. Also, the QL for CBOD₅ was changed from 5 mg/L to 2 mg/L. Authorized by VPDES Permit Regulation, 9VAC25-31-190.J.4 and 220.I. Part I.C.2.f added to determine compliance with annual TP limit. This condition is necessary when a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.</i></p>

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Part I.D	Whole Effluent Toxicity (WET) Requirements: <i>Updates Part I.D of the previous permit with minor wording changes.</i> VPDES Permit Regulation, 9VAC25-31-210 and 220.I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.
Part I.E.1	95% Capacity Reopener : <i>Updates Part I.E.1 of the previous permit with minor wording changes.</i> Required by VPDES Permit Regulation, 9VAC25-31-200.B.4 for certain permits. Included for this facility to ensure that adequate treatment capacity will continue to be provided as influent flows and/or loadings increase.
Part I.E.2	Materials Handling/Storage: <i>Updates Part I.E.2 of the previous permit with minor wording changes.</i> 9VAC25-31-280.B.2. requires that the types and quantities of “wastes, fluids, or pollutants which are ... treated, stored, etc.” be addressed for all permitted facilities.
Part I.E.3	O&M Manual Requirement: <i>Updates Part I.E.3 of the previous permit with changes to what is required to be included in the O&M Manual.</i> Required by Code of Virginia 62.1-44.19, SCAT Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs and included for this facility per BPJ.
Part I.E.4	Concept Engineering Report (CER) Requirement: <i>Updates Part I.E.4 of the previous permit and does not limit the requirement for a CER to nutrient removal projects.</i> Section 62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations.
Part I.E.5	Licensed Operator Requirement: <i>Updates Part I.E.5 of the previous permit with minor wording changes.</i> The VPDES Permit Regulation 9VAC25-31-200 C, the Code of Virginia 54.1-2300 et seq., and Rules and Regulations for Waterworks and Wastewater Works Operators 18 VAC 160-20-10 et seq., require licensure of operators. The licensed operator requirements apply to wastewater treatment works based on the maximum 30-day average flow and treatment type. A class II license is indicated for this facility.
Part I.E.6	Treatment Works Closure Plan: <i>Updates Part I.E.7 of the previous permit with minor wording changes.</i> This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law.
Part I.E.7	Instream Monitoring: <i>Updates Part I.E.10 of the previous permit. The reopener section of this condition was moved to Part I.E.8.d of the permit.</i> The State Water Control Law 62.1-44.21 authorizes the Board to request information needed to determine the discharge’s impact on State waters.

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- Part I.E.8 **Reopeners:**
a. *Updates Part I.E.8.a of the previous permit:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.
b. *Updates Part I.E.8.b of the previous permit:* 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
c. *Updates Part I.E.8.c of the previous permit:* 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
d. *Identical to the reopener language in Part I.E.10 (Stream Monitoring Program) of the previous permit.*
e. *New Requirement.* Required by the VPDES Permit Regulation, 9VAC25-31-220.C, for all permits issued to STPs. This reopener was added based on BPJ since the industrial WWTP treats sanitary wastewaters from a mobile home park, an apartment building and residences as well as sanitary wastewater from George’s Chicken LLC and Mountain View Rendering.
- Part I.E.9 **Annual Average Concentration Limits:** *New requirement.* 9VAC25-40-70.B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.
- Part I.E.10 **Notification Levels:** *Identical to Part I.E.9 of the previous permit.* Required by the VPDES Permit Regulation 9VAC25-31-200.A for all manufacturing, commercial, mining, and silvicultural dischargers.
- Part I.E.11 **Nutrient Monitoring Requirements for Discharges of Industrial Stormwater:** *New requirement.* Monitoring requirements for nutrients apply for Outfall 004 as this outfall discharges solely industrial stormwater associated with industrial activity. Requirements are in conformance with Guidance Memo 14-2011, Nutrient Monitoring for “Nonsignificant” Discharges to the Chesapeake Bay Watershed.
- Part I.E.12 **Expansion of facilities that discharge to waters subject to the Chesapeake Bay TMDL:** *New requirement.* Refer to Guidance Memo No. 14-2011, Nutrient Monitoring for “Nonsignificant” Discharges to the Chesapeake Bay Watershed dated August 8, 2014.
- Part I.E.13 **Sludge Management Plan:** *New requirement.* VPDES Permit Regulation 9VAC25-31-100.P, 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9VAC25-32-10 et seq.). Applied to this industrial permit per BPJ.
- Part I.E.14 **CBOD₅ Plan:** *New requirement.* The State Water Control Law 62.1-44.21 authorizes the Board to request information needed to determine the discharge’s impact on State waters.

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- Part I.F.1 **General Stormwater Special Conditions:** *Updates Part I.F.1 of the previous permit.* VPDES Permit Regulation 9VAC25-31-10 defines discharges of stormwater from industrial activity in 9 industrial categories. 9VAC25-31-120 requires a permit for these discharges. The Stormwater Pollution Prevention Plan requirements of the permit are derived from the VPDES general permit for discharges of stormwater associated with industrial activity, 9VAC25-151-10 et seq. VPDES Permit Regulation, 9VAC25-31-220 K, requires use of best management practices where applicable to control or abate the discharge of pollutants when numeric effluent limits are infeasible or the practices are necessary to achieve effluent limit or to carry out the purpose and intent of the Clean Water Act and State Water Control Law. The sector-specific requirements are derived from the VPDES general permit for discharges under Sector U – Food and Kindred Products.
- Part I.F.2 **Stormwater Pollution Prevention Plan:** *Updates Part I.F.2 of the previous permit.* See rationale above for general stormwater special conditions.
- Part I.F.3 **Sector Specific Stormwater Pollution Prevention Plan Requirements:** *Updates Part I.F.3 of the previous permit.* Benchmark monitoring is required for TSS, BOD₅ and TN. See rationale above for general stormwater special conditions.
- Part II **Conditions Applicable to All VPDES Permits:** *Updates Part II of previous permit.* VPDES Permit Regulation 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

DELETIONS

Tabulated below are the sections of the previous permit that were deleted and the basis for this action.

- Part I.A.1 Part I.A.1 of the previous permit for Outfall 001 prior to the plant upgrade was removed. The 1.7 MGD facility was upgraded in January 2011 so permit limits for the old facility are no longer applicable.
- Part I.E.6 Water Quality Criteria Monitoring – was removed from the permit. All of the required testing has been completed and screened.